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## VOLKMANN'S ISCHEMIC CONTRACTURE

ASSOCIATED WITH SUPRACONDYLAR FRACTURE  
OF HUMERUS

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The flexion deformity of the wrist and fingers resulting from contraction and fibrosis of the flexor muscles of the forearm, which is known as Volkmann's ischemic contracture, is of especial interest (fig 1). Affecting children and occurring as a complication of fractures of the lower end of the humerus, it results in permanent partial or total disability when once it is established despite the most expert surgical and physical treatment.

It is of interest to note that in the articles and reports of cases published since the original report of Volkmann in 1869 no author has claimed a certain method of cure. While there has been some difference of opinion, in the past, as to the factors involved in the production of the contracture, we at the Mayo Clinic believe that the etiology is now readily understood and that the means of prevention are available. To those who will carefully observe the symptoms and take proper measures to control circulation in the extremity immediately following injury, Volkmann's contracture will not present the embarrassing medicolegal question as to responsibility.

The extensiveness of the primary injury and the time interval between trauma and consultation are of the utmost importance, irrespective of the treatment given, and these are the factors which fix responsibility and which should be appreciated and emphasized when the physician is charged in the courts of law with negligence and malpractice. Patients with these unsightly extremities make an unusual appeal to the jury, yet the fact that Volkmann's ischemic contracture can occur even when no treatment has been given must be emphasized and understood by the public and the profession.

There should be no misunderstanding of the merits of conservative methods of stretching, as advocated by the late Sir Robert Jones, or of operative treatment, for surgery is resorted to only when conscientious and prolonged treatment has failed to correct the deformity. It is only through the use of these conservative stretching and surgical methods that benefit will be obtained in cases of Volkmann's contracture of long standing. Without physical therapy little can be accomplished. In every case of ischemic contracture, whether operation is performed or not, it is my opinion that physical therapy is the greatest aid in recovery of a useful extremity.

At the Mayo Clinic a series of 162 cases of Volkmann's ischemic contracture have been encountered, and I have selected for the present study sixty-nine cases in which supracondylar fracture was present (table 1). The histories and physical and laboratory examinations were reviewed and an attempt was made to judge the benefits of the treatment given, and, most important, of those measures which, if instituted in time, might have resulted in prevention. I was impressed with the variation in degree of damage done (table 2), type of treatment or lack of it given (table 3), and difficulties encountered in obtaining results. Most of our patients came long distances, long after disability had occurred (table 4), and were unable to remain a satisfactory period of time. In spite of these handicaps the patients were encouraged and what was considered the maximal treatment was rendered in the time available. The family physician and relatives were given every assistance in the after-care, with encouraging results.

Every experienced physician knows that muscles which are seriously involved in cases of Volkmann's contracture mean permanent disability and that the best the profession has to offer is improvement in function and appearance. We claim no certain cure, we present our experience and the results obtained in cases of fracture of the lower end of the humerus complicated by ischemic contracture and the means of prevention and treatment.

The factors leading in cases of fracture of the lower end of the humerus to the production of Volkmann's ischemic contracture are as follows. The force which breaks off the lower fragment carries the condyles backward and strips the periosteum away from the posterior surface of the proximal fragment, this space promptly filling with blood. The lower end of the proximal fragment is carried forward and downward, piercing the periosteum and forcing its way against the soft tissues, blood vessels and nerves become compressed and hemorrhage infiltrates the antecubital spaces and, if severe, as from a ruptured artery, forces its way into the forearm. Nerves may be severed and paralysis may be noted before there has been time for an ischemic condition to develop. Transportation or undue roughness or lack of skill in handling the fractured extremity may aggravate the damage and increase intrinsic pressure. Muscle pull holds the overlapping bones in malposition, further impairing circulation in the forearm.

The extent of injury up to this time depends on the type of fracture and local damage to soft tissues. Left alone, the result may be malunion, with a fairly good functional result in the forearm and some limitation of motion in the elbow. Should arterial hemorrhage be unchecked, venous flow is interfered with by the development of a subfascial hematoma, distention, tenderness and induration of the antecubital space and pain, cyanosis and loss of pulse and numbness take place.



Infiltration into the forearm is confined by the interosseous membrane, radius, ulna and the inelastic aponeurosis of the large flexor muscles. The arm then becomes cold and blue or purplish, the pulse is absent, blebs appear, intense pain occurs, and, unless intrinsic pressure is relieved, contracture takes place. In a matter of hours, not days or weeks, the damage to the muscle fibers has been done, owing to unavoidable circumstances, the patient may not have seen a physician or had any treatment whatever. The patient expects the fracture to be reduced, and the inexperienced

practitioner (fig 2 a and b). These cases included those in which the fractures had been reduced and the patients had apparently left the offices of their physicians in comfort, circulation having been satisfactory, but in which on the patient's next visit an unlooked for contracture was discovered. It is unfortunate that the general practitioner, who must of necessity travel considerable distances daily, is unable to see his patients as often as he would like and is forced to depend on unskilled aid in protecting himself. Ideal hospital and nursing care are, however, not always available. When



Fig 1—Volkmann's ischemic contracture of ten weeks duration. The patient was a boy, aged 6 years, whose arm had been kept in acute flexion following a supracondylar fracture of the left humerus. The two views are of the same arm.

practitioner who is confronted with induration of the antecubital space may attempt reduction and fixation in flexion, using bandages, splints or casts, if he is wise, he will devote his efforts to relieving the intrinsic

pressure. Patients are seen at a somewhat later stage, swelling may have become marked and reduction is attended with difficulty. Holding the fracture in acute flexion cuts off circulation and the recumbent position should be insisted on and the arm should be suspended for a few days until reduction can more safely be accomplished. An airplane splint is excellent for ambulatory patients. Why so many patients should be permitted to be up and about with arms swollen and cyanotic and hanging at their sides is difficult to understand.

A third group of patients is seen after the antecubital space is distended and tender and the pulse is faint, the skin has then become bluish red and pain is unbearable, opiates having often been freely administered. If splints, bandages, adhesive tape or casts have been applied, they should be removed and the arm should be elevated on pillows, with the elbow extended beyond a right angle. Warm, but not hot, moist dressings should then be applied. If within the next hour the swelling increases and the pulse is absent, the relatives must be warned as to the seriousness of the situation and preparation should be made to operate. Intrinsic pressure has in such cases become sufficient to

TABLE 1—Results of Treatment at Mayo Clinic in Volkmann's Ischemic Contracture, Fracture of Lower Part of Humerus\*

Treatment	Cases	Per Cent (of 46)	Marked improvement	Improvement (?) or No Change	Result Unknown
Lengthening of tendons	18	39.1	12	4	2
Manipulation	6	13.0	1	3	1
Neurolysis	4	8.7	1	1	2
Open operation on bone	4	8.7	1	2	1
Sympathectomy and resection of ulnar head	1	2.2	1		
Gradual stretching with splints	13	28.3	5	4	4
Total	46	100.0	21	14	8
No treatment referred home and so on	23	(33% of 69)			
Total	69				

\* Of patients traced the condition of more than 76 per cent is considered definitely improved.

pressure and will disregard the fracture. In such cases he would do well to call some one in consultation lest he receive blame though wholly undeserved, for having produced the disability through his treatment.

Uncomplicated supracondylar fractures treated immediately by accurate reduction and retention in flexion give excellent results. Repeated observations of the color of the hand and of pulsations should be made lest an unrecognized hemorrhage appear and impair circulation. The position of the fragments should be checked to make sure displacement has not occurred, anteroposterior and lateral roentgenograms should be taken immediately after reduction and at various intervals thereafter.

In a previous paper I pointed out that malunion occurred in 40 per cent of cases of fracture associated with ischemic contracture and I believe that the displacement occurred in many instances during attempts at relieving pain and swelling by releasing the retentive

TABLE 2—Involvement of Nerves in Volkmann's Ischemic Contracture Fracture of Lower Part of Humerus

Nerve	Cases
Radial	6
Radial and median	1
Radial, median and ulnar	2
Ulnar	1
Ulnar and median	1
Brachial plexus (1 partial)	2
Total stated	13
Not stated	56
Total	69

block the venous flow, but the stronger walled artery still permits a little blood to be forced into the arm. In the cases of older patients with impaired blood vessels and feeble hearts gangrene is possible, but in children the stage is set for ischemic contracture.

A fourth group of patients is encountered after several manipulations have been performed and considerable time has intervened since the fracture. The arm is then distended to such an extent as to demand immediate relief through surgical measures. There is no time to be lost, as degenerative changes may not be complete and viable tissue may yet be saved. It is at times impossible to judge accurately as to the amount of damage done to the nerves and blood vessels for the circulation is no longer active and, with its loss, the nerve supply becomes numbed and the finer distinctions

cutaneously by means of a special knife. The fracture may be reduced and internal fixation used by means of bone screws or Kirschner wire, which may be passed up through the condyles into the proximal fragment. The entire arm is then enclosed in a large, moist alcohol and boric acid dressing and is suspended in abduction. The physician who has mastered the preventive mea-

TABLE 3—First Treatment Elsewhere in Volkmann's Ischemic Contracture Fracture of Lower Part of Humerus

Treatment	Cases	Per Cent
Splint	38	56.7
Cast	14	20.9
Acute flexion and bandage	13	19.4
Open operation	1	1.5
Suspension	1	1.5
Total stated	67	100.0
Not stated	2	
Total	69	

of sensation and motion are lost. Relatives should be advised and operation resorted to in the hope of preserving the function of the forearm, treatment of the fracture being of secondary importance. Skeletal traction, by means of a Kirschner wire through the olecranon, is an excellent method of correcting malposition of the fragments and should not in certain cases be overlooked as a useful aid, either as a preliminary to exploration of the hematoma or after careful operative inspection of the brachial artery.

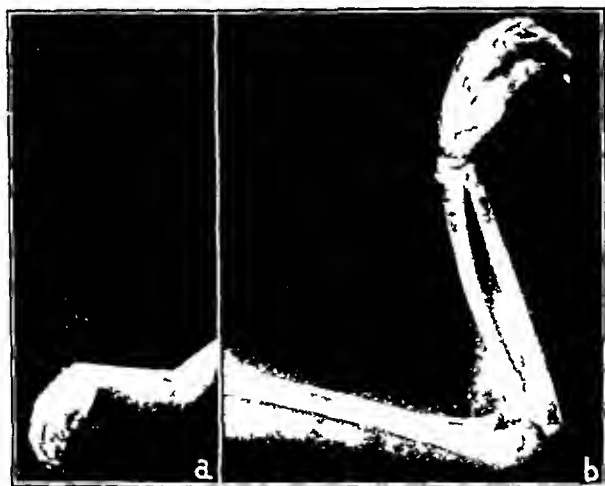


Fig. 2—*a* Volkmann's ischemic contracture. The patient was a boy aged 4 years. He had suffered a supracondylar fracture of the right humerus. The arm had been kept in splints for two weeks when flexion deformity and pressure sores in the antecubital region had developed. Then the arm had been splinted again. The ischemic contracture was of grade 3 and there was a scar in the antecubital region resulting from pressure. *b* evidence of malunion of the supracondylar fracture of the humerus and claw hand.

and median nerve. Free incision over the hematoma and through the deep fascia liberates muscle tissue and blood that have been under tension. An incision mesial to the biceps permits the bicipital fascia to be divided close to the tendon and the artery, vein and nerve can readily be inspected. Complete rupture of the brachial artery has been observed as well as partial or complete severance of the nerve. The deep fascia over the forearm may require division and this may be done sub-

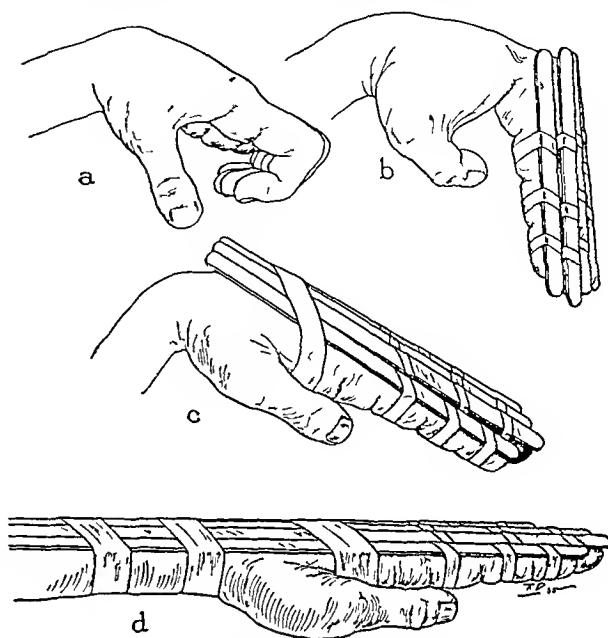


Fig. 3—Methods of splinting: *a* typical contracture; *b* tongue depressors used as splints to extend fingers; *c* tongue depressors used as splints to extend fingers and metacarpophalangeal joints; *d* longer wooden splints used to extend hand and wrist. All splints are padded with felt (not shown in the drawings) and are held in place by strips of adhesive tape loosely applied.

tures described is in a position to meet the complications following supracondylar fractures in children and to prevent many of the disastrous complications of ischemic contracture.

TABLE 4—Interval from Injury to Discovery of Contracture by Physician or Patient in Volkmann's Ischemic Contracture, Fracture of Lower Part of Humerus

Time	Cases	Per Cent (of 52)
Immediate	4	7.7
Soon	1	1.9
4 to 15 hours	4	7.7
1 to 5 days	13	25.0
1 to 2 weeks	7	13.5
2 to 3 weeks	7	13.5
3 to 4 weeks	6	11.5
1 to 2 months	8	15.4
2 months	2	3.8
Total stated	52	100.0
Not stated	17	(24.6 per cent of 69)
Total	69	

#### CONSERVATIVE TREATMENT OF VOLKMANN'S ISCHEMIC CONTRACTURE

Volkmann's ischemic contracture may occur in a few hours, and the earlier treatment is begun the better the results will be. The consultant is often called after the contracture has been present for some time, and he finds the wrist flexed, the metacarpophalangeal joints extended, and the phalanges acutely flexed. Motion at the elbow is often restricted and the hand is held in pronation, supination may be impossible and numbness of the forearm exists. As the damage to the soft tissues may be benefited by release of intrinsic

pressure, a consideration of the methods previously described should be given. No time should be lost in attempting gradual extension of the involved muscles, and the stretching method of the late Sir Robert Jones is generally recognized as excellent.

While the wrist is acutely flexed, it will be found that the fingers can be extended. Metallic splints are then fitted to each finger to maintain the corrected position



Fig. 4.—Banjo splint used to obtain extension of fingers and wrist

The patient now attempts systematically to extend the metacarpophalangeal joints, which are contracted. In a few days the joints stretch sufficiently to allow the application of longer splints, which extend to the wrist. After the wrist is exercised for a few days the splint is extended to the elbow, and among such splints can be used those which maintain extension of the hand. Thus the contracture is gradually and painlessly overcome.

I have found many splints in use but I prefer the simple and inexpensive wooden tongue depressors found in every physician's office (fig. 3). With these padded and held by strips of adhesive tape, the principles of Jones may be carried out until stretching of the wrist requires longer splints, which are usually made of a thin piece of boxwood. The use of rubber bands to pull the extended hand toward the longer splint is useful in extending the wrist. The banjo splint, used with rubber bands fastened to adhesive tape on the fingers, permits the fingers to be exercised at all times and is most efficient; it is inexpensive, can be made in a few minutes, and permits the patient to be cared for at home (fig. 4).

Care must be taken to gain the confidence of these children, and after a short time they will become interested and will cooperate exceedingly well. Thus the first few treatments may consist of heat and whirlpool baths combined with light massage. The splints soon may be adjusted and worn during the intervals between treatments. Active motion is performed willingly, and as confidence is gained active motion may be supported by gentle passive motion and electrical stimulation. We

at the clinic rely principally on heat and massage as aids to gradual stretching and do not believe that painful, passive motion or forceful manipulation under anesthesia is advisable.

The next stage in the treatment of Volkmann's ischemic contracture is that in which several months have elapsed since fracture, during which time treatment has been inadequate. The pain and swelling are gone and the hand is sensitive to cold and has the typical claw-like position, motion is limited. Usually the hand is held in pronation and there is limitation of motion in the elbow. Ulceration and scars from pressure of splints and bandages are not infrequent. Paralysis from primary injury or secondary to scar formation may involve one or more of the main nerve trunks. The radial pulse may be absent, and the arm and hand have lost the cyanotic appearance and are white. Attempts to straighten the fingers with the wrist extended bring out the tight flexor tendons and the hard atrophied flexor muscles, the finger nails cut into the hand of the examiner. The extensor group of muscles are, on the other hand, preserved or only slightly involved. There may be atrophy of bone and myositis ossificans, and roentgenograms may disclose malposition of the fracture, requiring correction. All forms of treatment now prove less satisfactory, and prolonged and adequate conservative treatment is best. First the Jones, or banjo splint, method of extension, combined with physical therapy, should be tried. When this has failed, the next stage is reached and surgery may now render the contracture more responsive to conservative treatment.

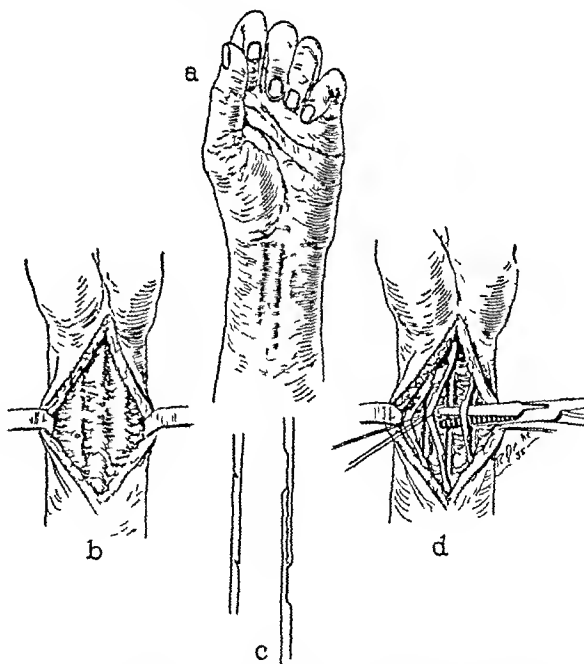


Fig. 5.—The operation. a line of incision on palmaris longus tendon. b vaginal fascia exposed. c left incisions which make possible stretching of tendon and right tendon stretched. d tendons in process of being stretched by use of hemostat.

In the third stage a group of deformities of longer duration is encountered, years often having passed with the contracture persisting in spite of treatment. Marked contracture, atrophy of bone, scars, contracted capsules, nerve degeneration and impaired circulation and a ropelike musculature challenge the most expert surgical care. The surgeon must now realize that no matter what type of operation is performed or how

skilfully it is done, he cannot bring about complete cure, when all other means have failed he is the only recourse, and he plans the operation in the hope of bringing about an improved cosmetic result and some return of function. If the flexor muscles are entirely fibrous the prognosis is poor. The surgeon should also remember that without careful postoperative care and prolonged and intelligent physical therapy he can accomplish little.

Through lengthening of tendons the surgeon is able to obtain extension of the fingers and wrist, the extent and benefit of this procedure depending on the damage done (fig 5). A longitudinal incision parallel to the palmaris longus muscle is made and the vaginal fascia is divided, exposing the muscle and tendon. By retracting the fascia one exposes the superficial group of muscles, and the tendons are lengthened by two oblique sections, 2.5 cm apart, three fourths of the distance across the tendons, stretched by means of forceps passed underneath. The usual muscles lengthened are the palmaris longus, flexor carpi radialis, flexor pollicis longus, and flexor digitorum profundus. In some instances the surgeon will find the median nerve bound down in a fibrous scar and neurolysis will be advisable, also the tendency to supination in the more resistant cases may be benefited by section of the pronator quadratus or the pronator teres.

I have observed a considerable difference in the amount of fibrous scar tissue and fixation of the structures about the wrist. In some cases it is possible to leave the tendons in their sheaths during operation and a minimum of retraction, scarring and adhesions results. When lengthening of the flexor pollicis longus and flexor digitorum profundus is performed, considerably more trauma is likely to result, binding the entire mass in scar tissue. With care this operation can be carried out with distinct satisfaction to the patient (fig 6), it allows correction of the deformity and improved function.

Neurolysis is beneficial especially when pressure sores are obvious and scars cause contracture and fixation of the nerve. The condition found at operation frequently leads the surgeon to conclude that the entire ischemic contracture is the result of injury to and fixation and degeneration of nerves. I feel that the changes in the nerves are usually secondary to the ischemia unless a primary injury or rupture occurs at the time of accident or manipulation. I have seen complete rupture of the median nerve following supracondylar fracture and ischemic contracture. In this series of cases the radial nerve was most commonly injured.

Resection of bone is resorted to in long standing cases of contracture in which the tendons are extremely short and all attempts at conservative treatment have failed. A bone graft may be used to bridge and maintain the wrist in extension. The stretching of nerves and blood vessels after years of contracture, during which time the bone has grown and the tendons have remained as they were, is not practical. I cannot agree with some who condemn this operative procedure of removal of bone. There is a group of older patients with long standing deformity in which resection of the carpal bones or radius and ulna give excellent cosmetic results and a measure of functional benefit.

Lowering of the common origin of the flexors at the epicondyle is an operation which partially releases contracture and is used in combination with gradual stretching. It may be performed at the same time the median and ulnar nerves are examined.

When the proximal end of the humerus projects forward in malunion, preventing flexion of the elbow or excessive callus formation or an ossifying hematoma exists, excision of the bony mass may be of benefit. Often there is contracture of the capsule of the elbow that will require capsulotomy. The biceps tendon may require lengthening as a result of involvement of the muscle from ischemia or long contracture. Even arthroplasty of the elbow would be preferable should the foregoing measures fail to permit movement and the function of the arm be not too seriously damaged. Sympathectomy has not as yet had a fair trial, but in one case it seemed to be of some aid.

Several patients have been encountered who had such extensive and long standing deformity and disability as to warrant amputation, in order to rid them of a useless and unsightly deformity.



Fig 6—Volkman's ischemic contracture with malunion. The patient was a youth aged 19 years. Five years before he had sustained a supracondylar fracture and splints had been applied. When these had been removed scars from sloughing and deformity and stiffness of the arm, elbow, wrist and fingers had been disclosed. The patient was operated on and has reported that function is good. Scars can be seen on the arm and over the fifth metacarpal.

The prognosis depends on many factors: the age of the patient, the type of bandages, splints and casts used and whether they have caused pressure sores and scars, the extent of hemorrhage, and whether good union or malunion was obtained, whether infection was present or there was damage to blood vessels or nerves, the presence of an ossifying hematoma, and degree of contracture and extent of fibrosis of muscle.

#### SUMMARY

Volkman's ischemic contracture is most frequently associated with supracondylar fractures treated by acute flexion. In the presence of swelling and hemorrhage, acute flexion tends to impair circulation by increasing pressure in the antecubital space, even though the fracture is reduced.

Reduction of the fracture may be deferred several days, the treatment being directed to the care of the soft parts in order to preserve function. Elevation of the arm hastens the relief of swelling in recumbent treatment, abduction on an airplane type of splint in the ambulatory treatment. Drainage of large hematomas may be indicated. Reduction and internal fixa-

tion of the fracture following removal of blood clots is feasible and is a useful aid in preventing impaired circulation

Prevention is possible in many instances, provided the patient is seen in time and the utmost care is used to combat circulatory damage

Hemophilia also may cause Volkmann's ischemic contracture

Conservative methods of treatment, such as the stretching method as advised by Sir Robert Jones, constant stretching with the banjo splint, and physical therapy, give the best results. Severe deformities of long standing require in addition surgical intervention

Intrinsic or extrinsic pressure from various causes cuts off the venous flow while permitting some arterial flow, hemorrhage, with the formation of blood clots, infiltration, edema, acute flexion, malposition of fragments, and pressure of bandages, splints and casts are some further factors concerned in impairing circulation

In obtaining the history special attention should be paid to the type of injury, the length of time before treatment, and evidence of injury to blood vessels or nerves. A record of the previous treatment, together with roentgenograms taken before and after reduction, should be available before the consultant assumes responsibility

Volkmann's ischemic contracture may result from injury or hemophilia even when treatment has not been given

## THE MISUSE OF TANNIC ACID

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At the present time the tannic acid treatment of burns is in more general use than any other. It has attained its great popularity through its success in extremely severe burns in which the life of the patient is at stake and when wound dressings form an important part of the problem

Because of this acceptance in the more severe burns, tannic acid is being used quite extensively in the less severe burns. It is a common sight to see the skin of the ambulatory clinic patient blackened by a tanning agent. Numerous ointments containing tannic acid or other protein coagulating material are on the market. Fortunately these have not become generally adopted. Nevertheless they are frequently used, as is tannic acid in the treatment of simple "second degree" burns

The argument in this procedure is that since tannic acid is generally thought to be quite the approved method of treating severe burns it must likewise be the treatment of choice in less severe burns. In the present article the fallacy of this line of reasoning will be pointed out and some of the tissue changes occurring in the burned and subsequently tanned skin will be analyzed

With the injury of the skin by heat, a varying thickness of the epithelium is killed. When this involves only the superficial layers, regeneration takes place quite rapidly from the remaining germinal layer. If the germinal layer also is destroyed, regeneration takes place from the depths of hair follicles and sebaceous glands where the epithelium is still viable. Under favorable conditions this new growth of epithelium proliferates over adjacent granulation tissue, thus

eventually covering the entire surface. From a theoretical standpoint, remnants of sweat glands should be able to undergo the same proliferation. However, in the skin sections of burned tissue thus far studied, this source of a regenerating epithelium seems to be negligible. If the burn has destroyed the epithelium of the hair follicle and sebaceous gland there is of course no possible source of regeneration except about the periphery, where destruction was less severe. This type of "third degree" burn forms a small minority of burns encountered

### ACTION OF TANNIC ACID ON SKIN

If the usual 5 per cent tannic acid solution or any other protein coagulating material is applied to uninjured skin, the outer layers are tanned or "fixed." If this tanning process is continued with sufficient intensity, the "prickle cell" layer and even the germinal layer may become "fixed" and therefore killed. During the usual tannic acid treatment the germinal layer of normal skin is not tanned by the process. It is well protected by the heavy cornified layer of the human skin. However, tanning may often extend well down into the "prickle cell" layer of the normal skin

Quite a different condition exists following the use of tannic acid on injured or burned skin. The dead epithelium is of course "tanned" rather rapidly. If the process stopped at this point, the treatment could certainly be termed ideal. Unfortunately with the usual treatment the tannic acid continues to penetrate and "tans" the underlying viable epithelial cells, the very cells that might have taken such an active part in the regeneration of the surface epithelium

It is the common belief that tannic acid precipitates the protein of only the dead or injured tissue. This seems evident, since the uninjured epithelium does not become blackened by the repeated application of tannic acid. The reason for this apparent failure to become tanned is the protective action of the cornified epithelial layer. This strongly resists the acid and prevents it from damaging the underlying delicate germinal layer. However, once this cornified layer is destroyed or broken the tannic acid readily reaches the germinal layer or the outer portions of the hair follicles. Here it "tans" these actively growing cells quite easily and rapidly. Thus the treatment destroys many of those very cells from which one expects active regeneration to occur

This precipitation of the germinal layer by tannic acid is known to all who have studied sections from such tissue. In figure 1 is shown a section taken from the margin of a burn three days old. It occurred in a child whose clothes became ignited while at play. The treatment consisted of the usual spray method of applying 5 per cent tannic acid solution. It is noted that the viable epithelium stops abruptly where the tannic acid coagulum begins. There are no living epithelial cells in or beneath this coagulum. It is of course possible that the burn ended just as abruptly as is indicated in the photomicrograph and that the coagulum included only the dead epithelium. This, however, seems highly improbable, especially since practically all similar sections studied present the same abrupt termination of living epithelium. It seems more probable then that the cornified layers adjacent to the living epithelium in figure 1 were injured by the burn, thus allowing the tannic acid to penetrate to the germinal cells and incorporate these in the coagulum

The ability of tannic acid solution to "tan" live epithelium is easy to demonstrate experimentally. Figure 2 illustrates the skin of a rabbit that has been painted with 5 per cent tannic acid twenty-five times during a six hour period. It will be noted that the rabbit (or most experimental animals for that matter) has practically no protective cornified skin layer. Therefore the tanning solution may act on the germinal epithelium with little interference. In the photomicrograph the entire surface epithelium has been tanned and thus killed. The tanning process has extended down along the hair follicle to a point indicated by the arrow. Beneath the arrow is noted the usual heavy band of inflammatory cell infiltration. In the illustration most of the epithelial cell nuclei are plainly visible and give the impression that their cells are still alive. This is due to the fact that they have been thoroughly "fixed" by the tanning solution and the section has been removed just twenty-four hours after the tannic acid was first applied.

It may be argued that if the underlying viable epithelium is coagulated by the treatment too much tannic acid has been used. Who can say just how much to apply in a given burn, or, for that matter, who can say on first inspection of a recent burn just how deep the burn has penetrated? What epithelial islands have been killed? What islands may survive unless they are immediately coagulated by tannic acid?

No one would consider treating the donor site of a split skin graft with tannic acid. Yet this situation is quite comparable with the usual burn in which regeneration must also take place from the remaining living epithelial cells of the hair follicles.

It would seem wiser then in the treatment of the great majority of burns not to institute any therapy that might destroy surviving epithelial cells. As previously mentioned, first inspection of a burn, except in

solution of sodium hypochlorite or ointments be instituted until it can be determined just which epithelium will survive and which will die. It is fully admitted that this procedure creates a definite problem of dressing the wound. These are painful and dirty and greatly increase the nursing care required. This care does,



Fig 2—Normal skin of rabbit tanned and removed eighteen hours later. The epithelial cells are tanned and thus killed over the entire surface and down into the hair follicle to the point indicated by the arrow. Regeneration in this case would have to start from the very base of the follicle. The usual band of inflammatory cell infiltration is noted beneath the coagulated surface (just under the arrow).

however, allow the uninjured epithelium to proliferate at maximal speed and to cover the denuded area in the shortest length of time.

It is not within the scope of this discussion to consider those extremely severe cases for which the original Davidson tannic acid treatment was suggested.<sup>1</sup> That, or at least a form of coagulation therapy, has come to stay, principally because of the greater ease with which these patients can be handled. It should, however, be pointed out that the greatly lowered mortality which has been reported in the use of tannic acid in burns is no doubt due to two factors entirely apart from the coagulative solution itself. These are (1) an increased interest on the part of the hospital staff treating cases of burns and (2) a full appreciation of the resultant shock and the replacement of lost fluids of the body.

Coan<sup>2</sup> has recently suggested the use of ferric chloride as a coagulant. This would seem to offer much the same objections found in tannic acid. Of the numerous coagulants that have been advocated, the 1 per cent gentian violet suggested by Aldrich<sup>3</sup> is the least harmful to the regenerating epithelial cells. In the present study it was found that gentian violet will destroy germinal epithelium, but to a lesser extent, and will not penetrate or cause the severe local reaction encountered with tannic acid.



Fig 1—Margin of a burn three days old which has been treated with tannic acid. The coagulum has been torn in sectioning. Note that the epithelium ends abruptly and that no viable germinal cells are found beneath the coagulation zone.

rare cases will not reveal which tissue will live if given favorable opportunity and which will die. Therefore it is suggested that any coagulating material be withheld from all burns except the more extreme cases in which the life of the patient is at stake. It is further suggested that bland dressings of saline solution, dilute

<sup>1</sup>Davidson E. C. The Use of Tannic Acid in the Treatment of Burns. *Surg. Gynec. & Obst.* 41: 202 (Aug.) 1925.

<sup>2</sup>Coan G. L. Ferric Chloride Coagulation in Treatment of Burns. *Surg. Gynec. & Obst.* 61: 687 (Nov.) 1935.

<sup>3</sup>Aldrich R. H. The Role of Infection in Burns. *New England J. Med.* 208: 299 (Feb. 9) 1933.



## SUMMARY

1 The tannic acid treatment of burns was originally advocated for use in severe, extreme cases. It is now frequently used in milder "second degree" burns.

2 The action of tannic acid applied to a burned area in which viable islands of the germinative epithelial cells still survive is not limited to the dead tissue. Many of the epithelial cells that might take part in the repair of the denuded area are also "tanned" by the treatment. Repair is thus delayed.

3 It is suggested that coagulation treatment of burns be reserved for the most severe types and that bland wet dressings and ointments be used on the great majority of "second degree" burns.

23 East Ohio Street

## CLINICAL MONGOLISM IN COLORED RACES

## WITH REPORT OF A CASE OF NEGRO MONGOLISM

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School of Medicine

NEW HAVEN, CONN

As early as 1843 Sequin described a mongolian type of mental defect in France and later Lombroso of Italy recognized the condition in his account of Mattinette Colombo. It remained for J. Langdon Down in 1866 to delineate a clinical picture of mongolism. As late as 1903 very little had been written on the subject except in Great Britain. Muir<sup>1</sup> mentions two German and five American references and states that mongolism seems to be confined to the Caucasian race.

This point of view was generally accepted until 1922, when Tumpeer<sup>2</sup> and Demuth<sup>3</sup> reported two cases in Chinese children. Interest in the racial aspects of mongolism received an impetus in 1924, when Crookshank<sup>4</sup> denied the possibility of mongolism occurring in the Negro, although reports of three cases had been published prior to 1924. Bullard<sup>5</sup> had reported one case in 1911 and von Hofe<sup>6</sup> two in 1922.

## SURVEY OF THE LITERATURE

I have made a survey of the literature and find that since 1924 a total of twenty-eight cases of Negro mongolism have been reported in America. In the present paper I am reporting an additional case, bringing the grand total of cases in the medical literature to thirty-two. These cases are all listed in table 1. The present survey also revealed five Chinese cases, more than sixty Japanese, one Hindu and one West Indian case.

It was once doubted whether mongolism occurs in the Semitic race. The literature, however, now reports cases in Jews from Asia Minor, Germany, France, England, Poland and Galicia. In the United States it has been found in Austrian, Russian, Rumanian and American Jews.

In a series of 2,090 admissions to the Fountain Mental Hospital (England), Dr. Brushfield<sup>7</sup> reported

- 1 Muir J. An Analysis of Twenty Six Cases of Mongolism. Arch Pediat 20: 161-169, 1903.
- 2 Tumpeer H. Mongolian Idiocy in a Chinese Boy. J A M A 79: 14-16 (July 1) 1922.
- 3 Demuth F. Mongoloide Idiotie bei einem Mongolen. Ztschr f Kinderh 33: 110-112 (July) 1922.
- 4 Crookshank F G. The Mongol in Our Midst. ed 3. New York: E P Dutton & Co. Inc. 1931.
- 5 Bullard W N. Mongolian Idiocy. Boston M & S J 18: 4-56, 1911.
- 6 von Hofe F H. A Report of 150 Cases of Mongolian Idiocy. Arch Pediat 39: 737-740 (Nov) 1922.
- 7 Brushfield T. Mongolism. Brit J Child Dis 21: 241-258 (Oct-Dec) 1924.

177 mongolians. For 151 of these, case histories were obtained and twenty-four, or one in 65, proved to be British born Jews, a rather high proportion.

The number of countries or nationalities in which mongolism is now known to occur is at least twenty-three, as follows: Australia, Austria, Bermuda, China, Holland, England, France, Germany, Greece, Italy,

TABLE 1—Report of Cases of Mongolism in Colored Races

Author	Date Reported	Number	Sex	Age at First Exam	Postion in Family	Reported Age of Mother	Reported Age of Father
Negro							
Bullard <sup>5</sup>	1911	1	♂	13 yr			
von Hofe <sup>6</sup>	1922	2					
Bleyer A J A M A	1925	1	♀	5 mo	8	30	40
84 1041, 1020	1925	1	♀	21 mo	4		
	1925	1	♂				
Davenport C B and Allen G J Psycho As thenes 20	1925	2					
266 1024 1025							
Herrman C Arch Pediat	1925	2					
42 523 1025							
Schlapp M J Hered	1925	1	♂				
16 161 1925	1925	1	♀				
	1925	6					
Brahdy M B Arch Pediat	1927	1	♀	7½ yr	2		
44 724 1927							
Wile I S, and Orgel S Z N J & Rec	1928	1		1 yr 9 mo			
431 1028							
Bleyer A Am J Dis Child	1932	5					
44 503 1932							
Mitchell A G, and Cook W C J A M A	1932	1	♂	12½ yr	1	31	30
2105 1932	1932	1	♀	3 yr	1		
	1932	1	♀	9 days	2	19	
	1932	1	♀	7 yr	3	21	30
	1932	1	♂	7 mo	2	20	26
Dunlap <sup>9</sup>	1933	1	♂				
Radeff I N Illinois M J	1934	1	♂				
66 279 1934							
Chinese							
Tumpeer <sup>2</sup>	1922	1	♂	9 yr	9	33	60
Demuth <sup>3</sup>	1922	1	♂	1 day	2	19	20
Brousseau K Mongolism Baltimore Williams & Wilkins	1928	1					
1028							
Sweet L K J Pediat	1934	1	♀	2 yr 2 mo	2	35	35
5 352 1934	1934	1	♀	18 days	5	40	40
Japanese							
Brushfield <sup>7</sup>	1924	1					
Okoshima K cited by Sweet	1925	4					
	1926						
Arai K cited by Sweet	1927	56					
Brousseau K	1928	1					
Yasui K S, cited by Sweet	1931	12					
	each year						
Yamashita H Orient J Dis Inf	1931	1	♀	1½ yr			
9 25 1931							
Washio J cited by Sweet	1932	50					
H W A L California & West Med	1932	1	♂	2 yr 9 mo	5	37	45
37 192 1932	1932	1	♀	15 mo	5	34	46
West Indian							
Wile and Orgel	1928	1					
Indian							
Chand <sup>10</sup>	1932	1	♂	6 yr	2	30	39

India, Ireland, Japan, Mexico, Norway, Poland, Rumania, Russia, Scotland, South Africa, United States, Wales, West Indies.

## AN INSTITUTIONAL AND SCHOOL CENSUS OF NEGRO MONGOLIANS

My interest in the racial aspects of mongolism has grown out of the experience in our own clinic. Over a period of twenty-three years we have diagnosed 107 cases of mongolism: fifty-six girls and fifty-one boys. In the same period we have examined 215 Negro children referred for developmental diagnosis. Only one of these presented mongolism. Inquiry showed that in

a similar period there has not been a single case of Negro mongolism in the state school for the feeble-minded. Connecticut has a colored population of over 29,000. This accordingly suggested a low rate of incidence.

In order to secure further statistical indications of the frequency of mongolism among Negroes, we made a

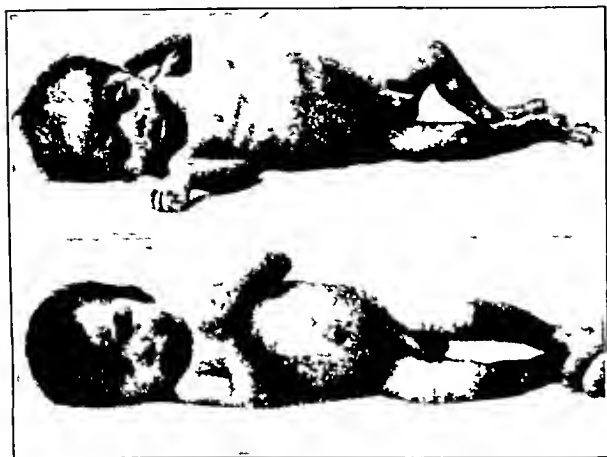


Fig 1—Comparison of clinical and racial mongolism. Above, mongolism in a Chinese infant aged 7 months; below, a normal Chinese infant aged 3½ months. (After Demuth.)

nation-wide canvass by letters addressed to state officials and other persons who might furnish information.<sup>8</sup> The following questions with slight variations were included in the letters of inquiry:

- 1 Present white population enrolled in your institution?
- 2 Number of white mongolians in this population?
- 3 Present colored population enrolled in your institution?
- 4 Number of colored mongolians in this population?
- 5 Number of colored mongolians admitted in previous years?

TABLE 2—Mongolism as Observed in Institutions

Race	No of Institutions	White inmates	Negro inmates	White Mongolians	Per Cent	Negro Mongolians	Per Cent
<b>Institutions</b>							
Negro only	2		3339			0	
White only	14	10513		308	2.9		
Mixed reporting Negro and white mongolians	16	30487	1607	843	2.7	30	1.8
Mixed reporting white mongolians only	24	27546	1002	768	2.7	0	
<b>Public school systems</b>							
Mixed reporting Negro and white mongolians		14376	1843	39	0.27	6	0.32
<b>Metropolitan hospitals</b>							
Mixed reporting Negro and white mongolians				377		31	
<b>Previous attendance</b>							
Negro (institutions 15 public schools 1)						16	
<b>Reported in literature</b>							
Inclusion of present case						32	
<b>Total</b>				2335		115	

A total of fifty-six institutions, three large general metropolitan hospitals and four public school special class systems reported mongolians, either white or Negro. The results are tabulated in table 2.

<sup>8</sup> I wish to acknowledge the cooperativeness of the numerous persons who furnished information. I am particularly indebted to the following for making available statistical data from their records: Dr. Neil A. Davton, director of statistics and research, Department of Mental Diseases of Massachusetts; Miss Elizabeth A. Walsh, acting director of the Board of Education of the City of New York; Miss Normal E. Cutts, supervisor of the Department of Exceptional Children of New Haven, Conn.; Harvard Medical School Children's Hospital, Boston; Johns Hopkins Hospital, Baltimore; Presbyterian Hospital, New York.

This canvass, including the thirty-two cases assembled from the literature, yields a total of 115 Negro mongolians identified by clinics, schools and institutions. The number is far from complete, but it is sufficiently large to controvert (once again!) Crookshank's positive assertion that mongolism does not occur among Negroes. Since a race is being dealt with which has only recently been transplanted into a new, civilized environment, and since mongolism possibly has an endocrine basis, it would be interesting to know whether these figures represent an increasing trend. But the requisite data for a judgment are not available.

These figures cover forty-two states in the Union and are sufficiently comprehensive to be indicative. From the Southern states excepting Texas, which supplied no data, only forty-two mongolians were reported. Two Negro institutions with a population of 3,389 reported no mongolian whatever. Even if it is assumed that less than one tenth of the feeble-minded population is institutionalized, this figure suggests a low incidence for Negro mongolism. In the Northern states, where institutional provisions for the colored population are probably more abundant, the trends seem similar. Connecticut is a fair example. In round numbers it has a white population of 1,500,000 and a colored population of 30,000, a ratio of 50 white to 1 black. The State Institution for the Feeble-minded cares for 1,230 white and forty colored persons, among whom there are forty-two white mongolians. In the whole history of the institution, extending over twenty years, no colored mongolian has been committed. As already mentioned, the Yale Clinic of Child Development, over a similar



Fig 2—Clinical mongolism in a Japanese infant aged 18 months. (After Yamashita.)

period of years, has received only one colored mongolian among a total intake of 107 mongolians. If the racial proportions in the general population were statistically maintained, our clinic should have had two colored mongolians on its panel, and the state institution at least one.

Dr. Dunlap<sup>9</sup> of Dallas, Texas, likewise finds that no case of Negro mongolism has been encountered in five

<sup>9</sup> Dunlap, J. E. Mongoloid Idiocy in a Negro Infant. *J. Pediat.* 2: 615 (May) 1933.



years in the Baylor University outpatient service, even though the colored attendance is double that of the whites, among whom three or four mongolians appear each year. It is such apparent disparities which build up the impression that mongolism in the Negro is extremely rare.

The available figures for the country as a whole make a similar impression. In terms of our canvass the number of ascertained (certified) white mongolians is 0.0016 per cent of the total continental white population of the United States. On the other hand, the number of ascertained colored mongolians is 0.00069 per cent of the entire colored population. If gratuitously one took these figures at a face value, white mongolism would appear to be two and a half times more frequent than Negro mongolism.

It should be noted here that of the 115 Negro mongolians listed forty-seven were reported by institutions, sixty-one by hospitals and physicians, and seven by directors of special classes. This would suggest that hospital populations now afford a more accurate indication of the frequency of mongolism among Negroes. The reported cases were invariably brought to the hospitals for respiratory and other ailments, and the diagnosis of mongolism was incidentally made.



Fig 3—Two institutional Negro mongolians. I J, aged 10 years and 8 months, mental level 3 years. W D, aged 16 years, mental level 2 years. (Courtesy of R. L. Dixon.)

Figures can be cited to show that the incidence for the black and the white race is nearly equal. For example, in sixteen institutions caring for 1,607 colored patients thirty, or 1.8 per cent, are mongolians. The

same sixteen institutions care also for 30,487 white patients, 843, or 2.7 per cent, of whom are mongolians. This is a close approximation, particularly when one recalls that the mongolian is often so benign and manageable that he can be readily cared for at home.

The figures for Massachusetts are important because of the extensive institutional provisions of this state. Out of a total population of 4,250,000, Negroes number

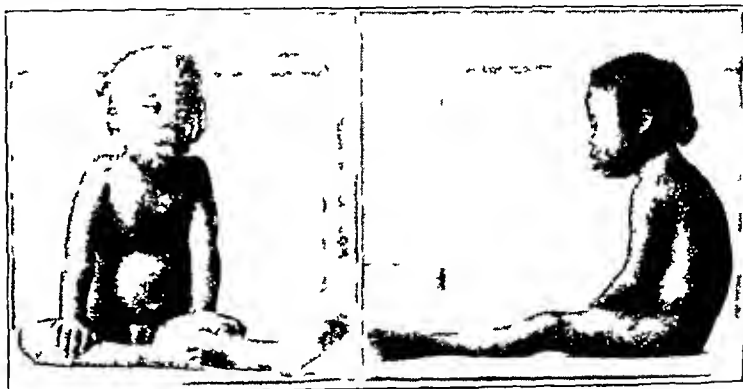


Fig 4—Clinical mongolism in a Negro girl (author's case). N M, aged 4 years and 4 months, developmental level between 12 and 24 weeks.

52,000, a ratio of approximately 80 to 1. The cases in resident population at the three state schools total to 4,933, of whom seventy-six are black and thirty-seven mulatto. The number of white mongolians is 203, the number of black mongolians, two. This roughly satisfies the ratio of 80 to 1.

Still more indicative are the statistics for public school special classes which enroll both white and black subnormal pupils. Out of a total enrolment of 14,376 white pupils, thirty-nine are mongolians. Out of a total of 1,848 colored pupils, six are mongolians. These percentages are significantly close, namely, 0.27 and 0.32. Distorting selective factors are probably least strong in determining the racial composition of public school classes for defective children. We have in this parallelism a strong basis for believing that mongolism is not significantly infrequent in the colored race.

#### RACIAL AND CLINICAL STIGMAS

The racial theory of the origin of clinical mongolism is weakened by the differences between a normal Chinese child and a developmental mongolian. When the two were compared side by side, Demuth found that in the mongolian child the skull is very decidedly brachycephalic, the forehead precipitous. It rises directly upward from the eyes, while in the normal child it recedes in the form of a sphere. The occipital head line lies parallel to the forehead. The flat saddle nose scarcely reaches the level of the forehead, its end is broad, the nostrils extend upward. The eyes are not only (normally) slit or almond shaped but very oblique, and the eyeballs converge. Epicanthus is characteristic.

For a comparison of racial and clinical features of mongolism the reader is referred to the instructive photographs reproduced from Demuth's report (fig 1).

Tumpey likewise found that the clinical features were not masked by the racial. The clinical mongolian presents a moon-shaped face without prominent cheek bones, and his eyes are more slitlike than those of normal siblings. Indeed, for developmental reasons the eyeballs of the clinical mongolian are set in oblique orbits and are not horizontally aligned as in the yellow race.

The single case from India, described by Amir Chand,<sup>10</sup> presents such well defined features that the patient was nicknamed "Chinaman" by his neighbors. Mongolism is reported to be extremely rare in India. Crookshank asserted that it never occurs among the Dravidian population of India.

For further sidelights on the susceptibility to mongolism among Negroes I have examined the literature bearing on the distinctive biologic characteristics of the African race. Bakwin<sup>11</sup> gives a useful bibliography on this subject in connection with his study of the Negro infant. He finds rickets, tetany, convulsions and stillbirths much more frequent among Negro infants. On the other hand, deaths from birth injury and congenital malformations are much more frequent among white infants. Negroes have a shorter trunk length

Although such differences are suggestive of a biologic disparity between the two races, they do not conclusively show that the white race is more liable to clinical mongolism.

I have discovered only three cases of cretinism in the Negro. If this condition is in fact so exceptional<sup>15</sup> it is a point of interest, because certain writers hold that there may be a fundamental relationship between cretinism and clinical mongolism. Collier<sup>16</sup> has reported one instance of these two conditions occurring in the same family. Tumpeo found in his case of mongolian idiocy in a Chinese boy that the basal metabolism rate was not significantly lowered and that restlessness rather than lethargy characterized the boy's behavior. Occasionally, however, it is reported that thyroid therapy has a beneficial effect on the early physical if not

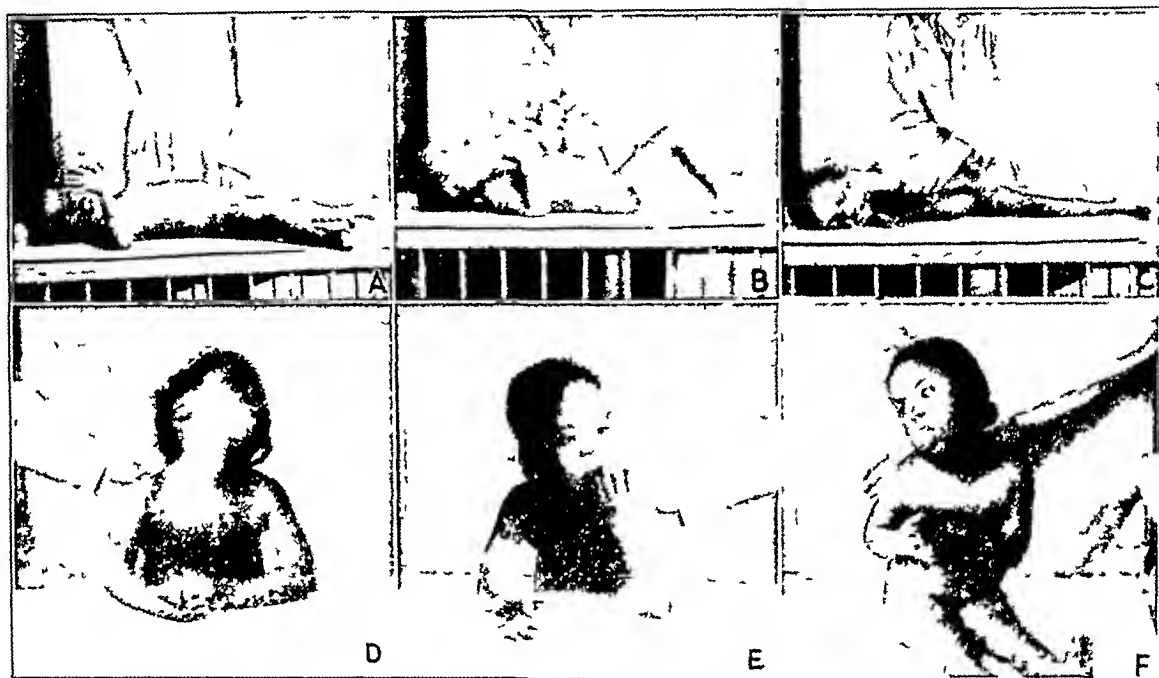


Fig. 5.—N M showing characteristic behavior as recorded by the cinema. A, spontaneous supine behavior, prolonged hand regard. Note the broad gap between the great toe and the adjacent toe. B, mouth reaching for rattle presented in the median line. C, demonstration of hypermotility of joints. D, head retraction without ocular fixation. E, mouthing of cube without inspection. F, protusion of tongue and imperfect sitting balance.

and a smaller vital capacity than whites. In external body size and conformation and in the anatomy and physiology of his internal organs the Negro is different from the white. Bean<sup>12</sup> states that the Negro has a smaller temporal brain lobe and a smaller spleen. A greater incidence of mental deficiency has been asserted.<sup>13</sup> Dayton's<sup>14</sup> statistics for the institutional population of feeble-minded, however, show that 109 out of 4,816 whites presented developmental anomalies, while not one of 113 blacks and mulattoes was so classified.

The proportion of total mortality attributable to lesions of the nervous system, the kidneys and associated excretory organs, and the endocrine system is in each case smaller in Negroes than in whites.

mental development of the mongolian. This again is suggestive of a relationship between cretinism and mongolism.

#### CLINICAL MONGOLISM IN A NEGRO CHILD (AUTHOR'S CASE)

N M was referred to the Clinic of Child Development when she was 13 months of age. The parents are presumably full blooded. Two older siblings are normal. The mother worked throughout her pregnancy, but the child was born at full term with a birth weight of 7½ pounds (3,402 Gm.) and was nursed for three months. The home is clean, but the father has religious beliefs which have interfered at times with the child's adequate nourishment.

At the age of 13 months the patient weighed 16½ pounds (75 Kg.) and was 29 inches (73⅓ cm.) in height. She presented a behavior picture of low grade defect. She was flaccid and generally relaxed. She could not sit up, even with ordinary support. She preferred the supine position, rolling constantly to the left side. Her major activity in addition to this

10. Chand, Amir. A Case of Mongolism in India. *Brit J Child Dis* 29: 201-205 (July-Sept.) 1932.

11. Bakwin, Harry. The Negro Infant. *Human Biol* 4: 133 (Feb.) 1932.

12. Bean, R. B. Some Anatomical Characteristics of the Mongoloid. *A Hypomorph White Type*. *J Psycho Asthenics* 29: 293-311. 1924-1925.

13. Viteles, M. S. The Mental Status of the Negro. *Ann Am Acad Polit & Soc Sci* 139: 166-177. 1928.

14. Dayton, A. A. Mortality in Mental Deficiency Over a Fourteen Year Period. Analysis of 8,976 Cases and 873 Deaths in Massachusetts. *Proc. of 55th Annual Session of the Am Assn for the Study of the Feeble-minded*. 1931. personal communication to the author.

15. The author is interested in securing more data on this interesting question and would appreciate any information which readers may bring to his attention.

16. Collier, W. T. Cretinism and Mongolism in the Same Family. *Brit M J* 2: 1044-1045 (Dec. 20) 1930.

rolling was a recurrent transfix regarding of the hand. She could not reach for a rattle. She held it, when inserted in the palm, momentarily and without inspection. But her own hand she repeatedly inspected for prolonged periods whenever it came within a favorable ocular distance. She made no social response either to her examiner or to her mother. She vocalized in a monotonous, shrill, inarticulate manner. Her behavior patterns were atypical as well as retarded and were in general at or below a 12 weeks level of maturity.

The patient was again examined three years later, at the age of 4 years and 4 months. She proved to have made little developmental progress in the interval. Her behavior remained atypical and had scarcely advanced to a 20 weeks maturity level.

Her physical and behavior characteristics are outlined in table 3. They are further suggested in the accompanying reproductions of photographs (figs. 4, 5 and 6), which were derived from a cinema record made when the child was placed in a clinical crib and subjected to

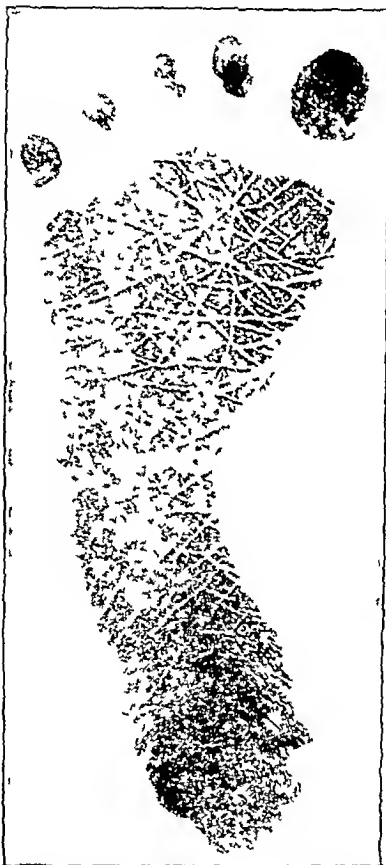


Fig. 6—Plantar dermatograph showing coarseness of skin creases

the various test situations of a developmental examination. Her behavior capacities may be summed up as follows:

#### Postural Behavior—

She still prefers to lie on her back. She can sit (with marked lumbar kyphosis) for short periods, leaning on her hands. She rolls from back to side and sometimes to prone. She cannot herself attain a sitting position.

#### Perceptual Behavior—

She can be made to attend to a 1-inch cube on a table top. She does not regard a pellet. She frequently and prolongedly regards her own hand.

#### Prehensory Behavior—

She closes in on a rattle when lying down and holds it prolongedly. She seizes a cube with crude palmar grasp when sitting.

#### Adaptive Behavior—

She manipulates a rattle without inspecting it.

She senses loss of a rattle but does not pursue it when it drops.

**Social Behavior—**She shows very meager social responsiveness. She attends more to the examiner's hand than to his face. She articulates a few inflected syllables.

#### SUMMARY

1 This paper attempts to throw light on the frequency of clinical mongolism in the colored races, with special reference to Negroes. The data that are presented include a survey of the literature, the results of a nation-wide canvass of institutions and schools, and the report of a new case.

2 In the illustrations the clinical stigmas are delineated to differentiate between clinical and racial characteristics.

3 Clinical mongolism in Negroes is more frequent than is commonly supposed. One hundred and fifteen cases were identified. Statistics for Massachusetts and for metropolitan public school systems, when analyzed,

TABLE 3—Outline of Characteristics of N. M., Aged 4 Years and 4 Months

Age 4 years 4 months	
Sex Female	
Race Negro	
Anthropometric Measurements	
Height	Vertex 92.5 cm
	Suprasternal 71.6 cm
	Symphysium 40.6 cm
Diameters	Biauricular 19.7 cm
	Mesocephalic 16.2 cm
	Iliac crest 13.4 cm
Girth	Chest 30.4 cm
Weight	13.07 kg
Head	
Length	15.8 cm
Breadth	12.3 cm
Girth	46.0 cm
Intracranial distance	34 mm
Anterior fontanel	open and depressed admitting finger tip
Forehead	well developed
Nose	extremely flat and broad at base
	Nasolabial junction confluent poorly defined
Eyes	obliquely set in oblique orbits
	Eyelashes long and upturned
	Internal strabismus
Ears	malformed adherent helix folded over
Tongue	tip papillate
Lower lip	full and fissured
Hard palate	vaulted
Teeth	irregular upper especially so right lateral incisor deviates outward
Thyroid	palpable
Spine	lumbar kyphosis
Abdomen	protuberant umbilicus protuberant
Skin	clear soft and redundant
Hands and feet	fingers tapered nails pink and well developed
	Great toe widely separated palmar and solar skin coarsely creased
Postural behavior	Atypical at 24 weeks level
Perceptual behavior	Near 20 weeks level
Prehension	In part at 24 weeks level
Adaptive behavior	12-20 weeks level
Social behavior	Markedly defective below 12 weeks level*

\* These developmental ratings are based on norms as specified in Gesell, Arnold, and Thompson, *Helen: Infant Behavior Its Genesis and Growth* New York: McGraw-Hill Book Company, 1934, and Gesell, Arnold, and others, *An Atlas of Infant Behavior: A Systematic Delineation of the Forms and Early Growth of Human Behavior Patterns* New Haven: Conn. Yale University Press, 1934. Illustrated by 3,200 action photographs in two volumes.

suggest that clinical mongolism occurs with almost equal frequency in black and white populations.

4 The distinctive biologic characteristics of the African race do not necessarily indicate greater immunity to clinical mongolism among Negroes, although congenital malformations are much more frequent among white infants.

5 In the author's case of clinical mongolism in a Negro child, behavior status was determined by a developmental examination. A tabular summary lists the thirty-one additional cases reported in the literature.

14 Davenport Avenue

**Minerals in Lean Meat—**When allowance is made for the difference in the moisture content, lean meat is closely comparable to whole-grain cereals in its content of the better known mineral elements. Both cereals and meat are fairly rich in phosphorus and iron but poor in calcium. Therefore, while the addition of meats, fish and poultry to a dietary based chiefly on cereals makes up for the deficiency of certain amino acids in the proteins of the grains it does not supply the calcium so inadequately furnished by grain products. The glandular organs are relatively richer than the muscles in iron, phosphorus, copper and manganese but they too are low in calcium. Salt water fish and shellfish are among the richest sources of iodine in the dietary.—Sherman, H. C. *Food and Health*, New York, Macmillan Company, 1934.

THE ADDITIVE EFFECT OF CALCIUM  
AND DIGITALIS

A WARNING, WITH A REPORT OF TWO DEATHS

J O BOWER, MD

AND

H A K MENGLE, MD

PHILADELPHIA

The specific therapeutic action of most drugs is generally well established and their action may be predicted with a fair degree of certainty. The use of drugs in combination has also led to recognition of the fact that certain drugs enhance the action of others—a synergistic effect. That certain drugs counteract the action of others, i e., physiologic antagonism, is also common

Calcium gluconate was introduced in 1927 and is available for intramuscular or intravenous use in a 10 per cent aqueous solution. It was presented as an improvement over the chloride and the lactate. It is not so irritating as calcium chloride and is much more effective than calcium lactate. The anion, gluconic acid, is easily destroyed by the body, being converted into dextrose. It requires very large amounts to cause toxic symptoms and because of its apparent harmlessness it is recommended by the manufacturers for oral, intramuscular and intravenous use. They point out that the effect following the intravenous injection is almost instantaneous, a hypercalcemia which lasts for some hours, after which the blood calcium gradually returns to its normal level. They list no contraindications. The following cases are reported because of our conviction

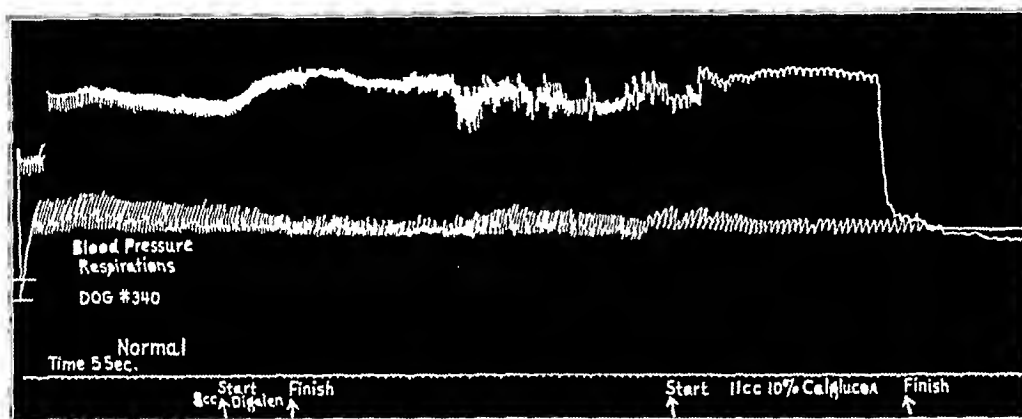


Fig 1—Calcium gluconate after injection of digalen

knowledge. However, the administration of one drug may produce a sensitization of the tissues, which so modifies the functional response of the tissues that a second drug exerts an effect diametrically opposed to its customary and expected action. This alteration of the functional activity of the cells may be produced by physical-chemical forces, by disease or by drugs.<sup>1</sup>

that there are very definite contraindications to the use of calcium intravenously.

CASE 1—A white woman, aged 32, admitted in our service Jan 2, 1935, with a history of several attacks of upper abdominal pain accompanied by nausea and vomiting, had a general history and physical examination typical of cholecystitis and cholelithiasis. The cardiac history was negative except for

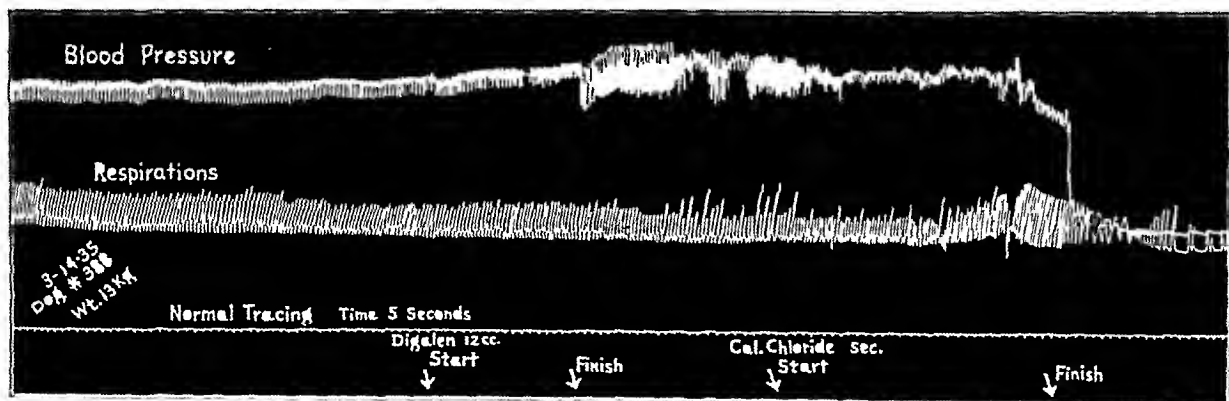


Fig 2—Calcium chloride after injection of digalen

There are many examples of drugs exhibiting this reversal of action under varying conditions.

Calcium may produce a varying cardiac response, depending on existing circumstances. Its action is affected not only by the state of the cardiac musculature but by the earlier administration of other drugs. Furthermore, when calcium is employed beforehand, the action of other drugs may be modified.

slight edema of the ankles, subsiding over night. The heart was normal by physical examination. The blood pressure was 120 systolic, 70 diastolic. The bromosulfalein test showed 35 per cent dye retention at the end of two hours. Cholecystectomy was performed January 3 under ether anesthesia. A single mulberry stone with hemorrhagic bile was found in the gallbladder. Two days after operation the pulse was 100, the blood pressure was 90 systolic, 50 diastolic, and extrasystoles were noted. Digalen, 15 minims (1 cc) every four hours, was administered and the following day the pulse rate dropped to 90 and the blood pressure rose to 120 systolic, 58 diastolic. Six days after operation the patient's abdomen was normal, she

From the Department of Surgical Research Temple University School of Medicine and the Philadelphia General Hospital.  
1. Hanzlik, P. J. The Basis of Allergic Phenomena. J. A. M. A. 52: 2001-2007 (June 21) 1924.

was passing gas, there was no distention and she was taking fluids by mouth without nausea. Her pulse, however, continued rapid and weak at a rate of 120. A medical consultant was called with reference to the tachycardia, as the lungs and abdomen were apparently normal. He suggested calcium intravenously, as he felt that 'the tachycardia was probably due to toxic irritation of the accelerator mechanism through sympathetic involvement.' Up to this point the patient had received approximately 250 minims (15 cc) of digalen over a period of six days. The last dose preceded the administration of calcium by at least twenty-four hours. The patient was given 10 cc

of twenty hours. October 22 he developed a fine tremor of both hands, which was diagnosed as beginning tetany. Ten cc of 10 per cent calcium chloride was injected intravenously, followed by the administration of physiologic solution of sodium chloride by means of the same needle, 50 cc of the latter fluid had been given when the patient suddenly developed cardiac collapse. One cc of epinephrine was given immediately still with the same needle. After one or two minutes the heart action could no longer be discerned, so 15 cc of epinephrine was injected intracardially without avail. Following this the respirator was applied with no response.

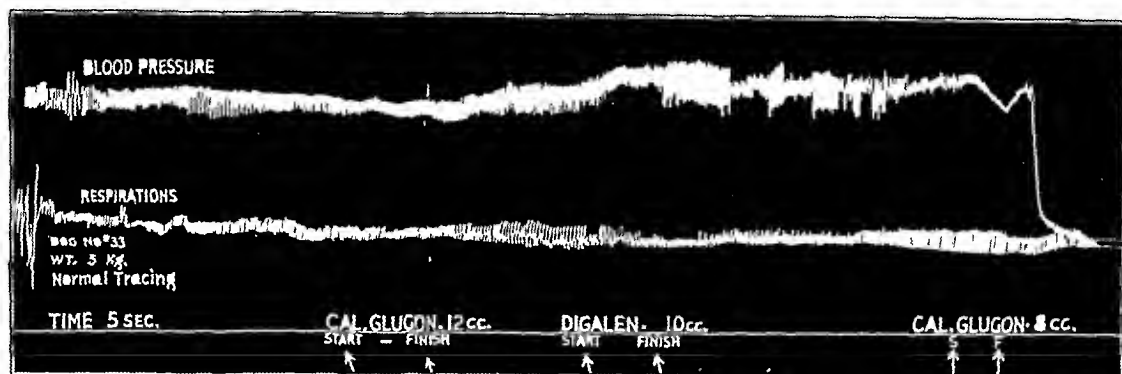


Fig. 3—Calcium gluconate after digalen produced death as in figures 1 and 2. Before the administration of the second dose of calcium the digalen shows little additional effect.

of a 10 per cent calcium gluconate solution through a 26 gage hypodermic needle into the right antecubital vein. We used the gluconate because we considered it less irritating than the chloride. The injection was stopped after 5 cc was given and the patient was engaged in conversation. After the injection was completed, she was asked if she felt all right. She replied that she did. About two minutes later her pupils dilated and she had a generalized convulsion with only slight muscular fibrillations. The heart sounds could not be elicited and the patient stopped breathing. In spite of artificial respiration and epinephrine given both intravenously and into the heart, the patient gave only a few inspiratory gasps and the heart sounds never returned. Autopsy revealed nothing definite as to the cause of death. Microscopic examination of the liver was negative. The heart muscle was flabby but not markedly so.

#### COMMENT

Several causative factors at once suggest themselves in case 1: liver damage, autonomic instability, speed shock, and the synergistic action of calcium and digitalis. Although the liver at operation seemed soft and bled easily, at autopsy it was very flabby, and the liver function test showed 30 per cent retention yet the pathologist's report hardly justifies classifying this case as a death due to hepatic insufficiency.

Autonomic instability is a vague term and while there are undoubtedly instances in which death is due to some powerful stimulation of the autonomic nervous system, there is too great a tendency to ascribe catastrophes to some such vague generalization. Every one is to some

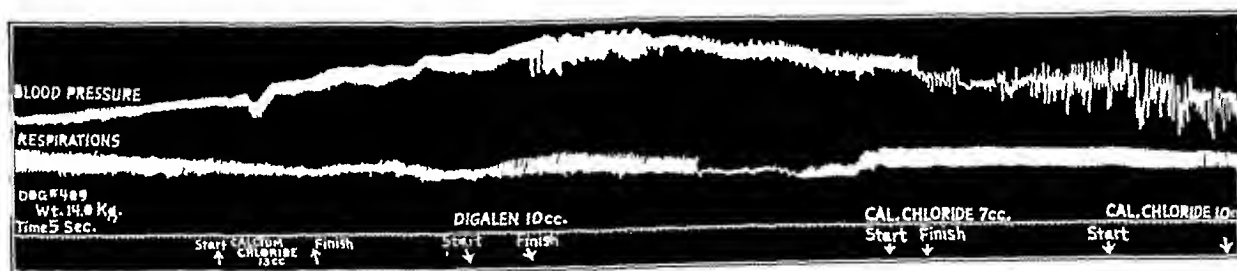


Fig. 4—Digalen preceded by calcium chloride. Note that more pronounced effects are produced when calcium follows the administration of digalen.

Immediately following this catastrophe, we learned from the surgical resident that a similar case had occurred in the service of the late Dr. Harvey Righter.

**CASE 2**—A R., a white man, aged 55, admitted to the hospital Sept. 11, 1933, had fractures of both femurs. Roentgen examination showed decalcification of the bones of the pelvis, the upper thirds of both femurs and the lower two lumbar vertebrae and decalcification of the bones of the head. The blood pressure was 130 systolic, 80 diastolic. There was general arteriosclerosis. The heart was apparently normal. There was clubbing of the terminal phalanges. A diagnosis of multiple myeloma or hyperparathyroidism was made. October 20, complete extirpation of the right lobe of the thyroid with the external capsule and possible parathyroid was performed. No parathyroid tumor was found. The patient returned from the operating room in fair condition. He received 1,470 cc of fluid, including 140 minims (85 cc) of digalen over a period

degree either vagotonic or sympathicotonic, and even in cases of recognized pronounced instability some additional stimulus is required to produce a fatality.

Physiologists and pharmacologists have long known that excess of calcium ions slows the heart rate and that large doses will stop the heart in systole. Macleod<sup>2</sup> states that perfused hearts may be kept beating for long periods of time in oxygenated Ringer's solution but that if the potassium ions are removed the heart stops in systole.

In 1931 Arnold Lieberman<sup>3</sup> reported the digitalis-like effects of calcium gluconate and cautioned against

<sup>2</sup> Macleod, J. J. R. *Textbook of Physiology*, ed. 7, St. Louis: C. V. Mosby Company, 1935.  
<sup>3</sup> Lieberman, A. L. *Comparative Studies on Calcium Gluconate and Other Calcium Salts*. J. A. M. A. 97: 15-17 (July 4) 1931.



its intravenous use. In 1933 he<sup>4</sup> studied the effect of calcium gluconate and scillaren administered together. He chose scillaren because its action is practically identical with that of digitalis and because it is quite stable and uniform in its action. He found that if one-half the lethal dose of scillaren was injected first, it required approximately one-half the calculated amount of calcium gluconate to kill the animal. On the other hand, if one-half the lethal dose of calcium gluconate was administered first, it required slightly more than the calculated amount of scillaren (106 per cent) to kill the animal. He prefers to call this an "additive" rather than a "unilateral synergistic" effect, and he believes that it is due to two substances of similar action acting at dissimilar speeds. The action of calcium (intravenously) is almost instantaneous, while scillaren requires from twenty to thirty minutes to exert its full effect. In all his experiments the injections were given at the rate of 4 cc per minute.

Lieberman also studied the rate of administration and found that if calcium gluconate was given very slowly, 0.5 cc per minute, from nine to twelve times as much could be administered before the blood pressure was disturbed as when the drug was injected at the rate of 1 cc per second.

Lloyd<sup>5</sup> in 1928 issued a warning against the intravenous use of calcium. This investigator injected 4 cc of 10 per cent calcium chloride into his own antecubital vein, while connected to an electrocardiograph; he became cyanotic, dyspneic and then lost consciousness for five minutes. It required epinephrine intracardially, precordial massage and artificial respiration to resuscitate him. During this time there were no oscillations recorded on the electrocardiograph. He states, somewhat dryly, that there were no ill after-effects.

#### EXPERIMENTAL WORK

In an endeavor to confirm these results, we studied the effects of large but sublethal doses of calcium chloride, calcium gluconate and digalen, administered intravenously. Dogs from stock and others especially prepared were used. The carotid artery was cannulized and a pneumograph applied to the chest to record the pulse and blood pressure and respirations respectively. In the first group, ten normal dogs were used. Fifteen per cent of the calculated lethal dose of calcium chloride or gluconate produced only a transient slowing of the pulse and a slight drop in blood pressure. When this dose was preceded by therapeutic doses of digalen, i.e., sufficient to produce changes in the pulse or blood pressure, definite toxic effects were obtained. Periods of asystole, extrasystoles, marked slowing of the pulse and fibrillation were observed.

Following the administration of digalen, approximately 30 to 40 per cent of the calculated lethal dose of calcium gluconate was given. After a brief rise in blood pressure there was an abrupt and dramatic cessation of heart action and the blood pressure fell to zero. Similar results were obtained with calcium chloride (figs 1 and 2).

On the other hand, after administration of sufficient calcium ions to produce definite circulatory changes (approximately 30 per cent of the calculated lethal dose), digalen in large doses gave no such results, and only when the full lethal dose of digalen was reached did the blood pressure fall and the circulation fail (figs 3 and 4).

A second group of five dogs was especially prepared by subtotal hepatectomy (an average of 80 Gm of liver per dog being removed) to simulate liver damage in case 1. While these dogs were more sensitive to small doses of either calcium ions or digalen than normal dogs, it is questionable whether their general physical condition was not to blame, rather than especial sensitivity produced by liver damage. Even with administration of dextrose, these animals live only a few days after operation.

A third group of six dogs received chloroform anesthesia, one-half hour for two successive days, as a preliminary preparation, to produce liver damage. The results did not differ essentially from those obtained in normal animals.

We feel that the results of these experiments, in conjunction with the reports of other writers, justify the conclusion that the administration of calcium salts intravenously, following the administration of digitalis or one of its purified proprietary modifications, is a procedure of considerable hazard and may result in avoidable fatalities.

#### SUMMARY

1 Two deaths occurred following the intramuscular administration of digitalis and the intravenous injection of calcium gluconate chloride.

2 The manufacturers of calcium gluconate or chloride should preface their literature with a warning relative to the additive effect of calcium and digitalis when given simultaneously.

2008 Walnut Street

## OBLITERATIVE VASCULAR DISEASE

### REPORT OF FIFTY-ONE CASES TREATED WITH PASSIVE VASCULAR EXERCISE

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The introduction of passive vascular exercise in the treatment of obliterative vascular disease has stimulated renewed interest in the care of patients suffering from symptoms due to impaired peripheral circulation. The idea of applying environmental pressure changes to an extremity in order to increase the flow of blood through it has been advanced by Reid and Herrmann<sup>1</sup> and by Landis and Gibbon<sup>2</sup>. One of the units for passive vascular exercise, designed by Herrmann, has been in use for the past year in the surgical and physical therapy departments of the New York Hospital. This unit differs from the apparatus designed by Landis and Gibbon chiefly in that the environmental pressure changes are produced slowly rather than suddenly. It is believed that rhythmic, gradual change from negative to positive pressure augments the flow of blood through an extremity just as effectively as does rhythmic sudden alternation in environmental pressure and does so without danger of injury to the intima of the vascular network, the vessels of which have already undergone some degree of sclerosis and thrombosis.

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<sup>1</sup> Herrmann, L. G. and Reid, M. R. The Pavaex (Passive Vascular Exercise) Treatment of Obliterative Arterial Disease of the Extremities. *J. Med.* 14: 524-529 (Dec.) 1933. The Conservative Treatment of Arteriosclerotic Peripheral Vascular Diseases. *Passive Vascular Exercises (Pavaex Therapy)*. *Ann. Surg.* 100: 750-760 (Oct.) 1934.

<sup>2</sup> Landis, L. V. and Gibbon, J. H. Effects of Alternate Suction and Pressure on Circulation in the Lower Extremities. *Proc. Soc. Exper. Biol. & Med.* 30: 593-595 (Feb.) 1933.

<sup>4</sup> Lieberman, A. L. *J. Pharmacol. & Exper. Therap.* 47: 183-192 (Feb.) 1933.

<sup>5</sup> Lloyd, W. D. M. *Brit. M. J.* 1: 662-664 (April 21) 1928.

The skepticism with which this ingeniously devised machine was received by the profession here gave way to interest after the spectacular demonstration of its value in a classic case of embolus of the femoral artery one year ago. Since that time approximately ninety patients have been given passive vascular exercise, of these only fifty-one were observed a sufficiently long time and were given enough hours of treatment to permit a fair evaluation of the clinical effects of the exercise on the course of the disease. It is my opinion that this recently developed therapeutic measure has justified its inclusion in medical therapeutics. In defense of this belief I shall report the results obtained with it.

TABLE 1—*Distribution of Fifty One Cases*

Diagnosis	Number of Cases
Arteriosclerosis obliterans (predominant involvement of major and secondary arterial pathways)	36
Sudden vascular occlusion	10
Thrombo angitis obliterans	4
Syphilitic endarteritis	1
<b>Total</b>	<b>51</b>

in different types of peripheral vascular disease. The principles and mechanism of the machine have been described by the inventor and a detailed account of the management, from an institutional point of view of the patients treated at the New York Hospital is to be published elsewhere.<sup>3</sup>

## SELECTION OF CASES

With regard to the selection of cases it may be said that every patient was subjected to a complete examination before passive vascular exercise was instituted. The symptoms of the disease were carefully noted and the physical examination included palpation of the peripheral pulses, determination of the presence or absence of Buerger's sign, oscillometric studies, roentgenograms of the feet, electrocardiograms when indicated, and skin temperatures with a record of vasospastic indexes in certain patients. During the period of observation on which this study is based, passive vascular exercise was employed without other treatment save the incision of the skin, the care of the nails and other simple measures advocated by Reid.<sup>4</sup> Dispensary and hospital patients were treated in the physical therapy department of the New York Hospital; their progress was observed by one physical therapist and they were daily attended by the same nursing staff. This centralization of treatment increased its efficient execution and simplified the evaluation of results.

## CLASSIFICATION

The classification used by de Takats<sup>5</sup> in a recent publication has been adopted in the presentation of these cases of peripheral vascular disease. Table 1 shows the distribution of the fifty-one patients according to this classification.

**GROUP 1—Arteriosclerosis Obliterans**—In this group there were thirty-six patients. Only those who were found to have predominant involvement of the

major or secondary arterial pathways were selected from some seventy patients with the general signs of peripheral arteriosclerosis and the complaint of intermittent claudication or rest pain. The selection was based on preliminary examinations and on observations of the early response to treatment. Calcification of the large vessels as determined by roentgen examination and diminished or absent oscillometric pulsations were considered evidence of impairment of the major or secondary arteries of the extremity. Vasodilatation, as demonstrated by a rise in the surface temperature following interruption of the sympathetic pathways, was accepted as an indication that the arterioles and capillary bed had not undergone diffuse sclerosis. Passive exercise was given for a period varying from three to six months to the thirty-six patients constituting a group of cases, which according to opinions expressed by earlier writers could be considered ideally suited for this treatment. The results obtained are given in table 2.

Fourteen of the thirty-six patients were ambulatory and twenty-two were hospitalized for treatment. The ambulatory patients were given from one and one-half hours to two hours of treatment four times a week. Eleven or 78.5 per cent were relieved of major symptoms and could be classified as definitely improved. Rest pain was less severe, intermittent claudication came on less rapidly, toe joint mobility was increased, subcutaneous thickening was less evident. Buerger's sign became less strongly positive, and the patients exhibited a definitely improved morale. Of the twenty-two patients who were hospitalized for treatment, eighteen, or 81.8 per cent, were improved. Toe amputation was necessary in three cases in this series but the end result was one of general improvement in the condition of the extremity. In two cases skin grafts were applied to healing areas. Passive vascular exercise seemed to have a distinctly favorable effect on the healing of the grafts. In seven cases there were arteriosclerotic leg ulcers. Four of these responded well to the treatment in three cases in which there was no improvement, amputation of the leg was carried out. The method adopted for selection of cases excludes a

TABLE 2—*Result of Treatment of Thirty Six Patients Having Predominant Involvement of Major or Secondary Arterial Pathways*

Result	Number of Cases	Percentage
Improved (no amputation)	26	72.2
Improved (toe amputation)	3	8.3
Improved (major amputation)	0	0.0
Unimproved (no amputation)	3	8.3
Unimproved (toe amputation)	0	0.0
Unimproved (major amputation)	4	11.1
<b>Total</b>	<b>36</b>	<b>100.0</b>

large number of arteriosclerotic subjects. It is believed that the high percentage of good results obtained in the cases reported here can be attributed to the careful choice of patients for treatment.

The most spectacular result was obtained in a man, aged 67, who exhibited signs of disease of the coronary arteries and who also was completely invalidated because of intermittent claudication. Excruciating leg pains became manifest when he walked a distance of only 12 feet. He could stand no longer than two or three min-

<sup>3</sup> Valentine, M. R. Am. J. Nursing to be published.

<sup>4</sup> Reid, M. R. The Diagnosis and Treatment of Peripheral Vascular Disease. Am. J. Surg. 24: 1133 (April) 1934.

<sup>5</sup> de Takats, Geza. Obliterative Vascular Disease. Preliminary Report of Treatment by Alternating Negative and Positive Pressure. J. A. M. A. 103: 1920-1924 (Dec.) 1934.

utes before the same pain necessitated recumbency. His chief concern was the fact that he could not remain standing twelve minutes the time needed to complete his daily shave. He was hospitalized and given two hours of treatment a day to both legs for a period of three months. Improvement was definite though gradual and at the time of his discharge from the hospital he could walk 300 feet and could stand from twenty to thirty minutes without pain. For the past four months this patient has been without treatment as he has returned to his home in a distant city. Subjective improvement has been maintained.

Several patients in this group were observed to experience pain during treatment especially during the negative pressure phase. This complaint was considered a contraindication to passive vascular exercise and was interpreted as evidence of fixed sclerosis of the arterioles. Three patients in the series experienced pain and in all three a radical amputation was later done for advancing gangrene and uncontrollable pain. Despite the fact that preliminary observations seemed to indicate that the smaller vessels were distensible, the amputated extremity showed advanced sclerosis not only of the major and secondary arteries but of the arterioles as well. This experience confirmed the opinion of other observers that vascular exercise is not beneficial in cases of advanced diffuse arteriosclerosis of the extremity. It was in one of these three patients that gas bacillus infection developed postoperatively in the midthigh amputation stump with a resulting surgical mortality. The patient, aged 64, was diabetic and had an open ulcer at the site of the toe amputation. The wound had been treated with dilute solution of sodium hypochlorite for many days and microscopic examination of smears from its surface showed no organisms. Passive vascular exercise had been given daily for two weeks in an effort to aid the healing of the wound to control pain and to prevent the extension of gangrene. As stated before the treatment caused the patient pain and was consequently discontinued. At the time of the amputation there was an unhealthy appearance of the skin in the midthigh region as if the rubber cuff applied to the thigh had caused local trauma. By some observers this slight trauma has been considered a possible contributory factor in the development of the Welch bacillus infection. Since this occurrence it has been demonstrated in this clinic that the rubber cuff, if properly applied, need not cause the slightest degree of pressure on the tissues of the thigh.

In my experience only a small number of patients with arteriosclerotic vessels of the lower extremity, who show good oscillometric readings can be expected to respond favorably to passive vascular exercise. In cases showing poor oscillometric pulsations a plan has been adopted whereby a trial period of treatment consisting of from eighteen to twenty-four hours is given in twelve sessions. If symptoms are alleviated and the extremity shows even slight improvement the course of treatment is extended. The results obtained in this group of patients have been very encouraging. The opinion is held that passive vascular exercise is the best available method for developing collateral circulation in an extremity the viability of which is threatened by advancing arteriosclerosis affecting chiefly the major and secondary arterial pathways. In only a few cases has an improvement in oscillometrics been observed.

**GROUP 2—Acute Vascular Occlusion** (thrombosis, embolism, operative ligation of arteries)—There were ten patients in this group. In four the treatment was instituted shortly after the acute episode. In four, passive vascular exercise was given to aid in the establishment of collateral circulation, the first symptoms having occurred from seven to ten days earlier. The result of treatment was good in three of these. Amputation was done in the fourth. Two patients had suffered bilateral femoral arterial emboli, had been treated with passive vascular exercise as an emergency measure in another institution, and had been referred here for subsequent care, to aid in maintaining the collateral circulation that had developed.

Detailed reports of the four cases in which treatment was instituted shortly after the onset of the acute episode follow.

The first patient was a man, aged 50, who was admitted to the hospital because of embolic gangrene of the right leg with adjacent cellulitis. Guillotine midthigh amputation was performed and forty-eight hours after operation the patient developed the signs of embolus of the left femoral artery. Pulses were absent at the femoral, popliteal, dorsalis pedis and posterior tibial arteries. Oscillometric examinations showed no pulsations at all in the thigh, calf or foot. The leg very rapidly exhibited a mottled bluish white discoloration. Arterial embolectomy or amputation would undoubtedly have been resorted to had not the constant application of passive vascular exercise brought about the development of adequate collateral circulation. Three hours after the treatment was started, the color of the leg had returned to almost normal. After seventy-two hours of continued passive vascular exercise the extremity appeared normal and treatment was discontinued, though the femoral, popliteal, post-tibial and dorsalis pedis pulses still were not palpable. The left leg remained free from symptoms or signs of impairment of the circulation. The patient died suddenly two months later in an attack of coronary artery disease. A mural thrombosis was demonstrated at autopsy.

The second patient was a man aged 79, who was admitted to the hospital ten days after the sudden onset of pain in the right leg. The patient complained of dizziness at the time of the onset of pain. Examination of the lower extremities at the time of admission to the hospital showed that there was a distinctly demarcated area of bluish discoloration involving the great toe and the toe adjacent to it on the right foot. The discoloration also extended up over the dorsum of the foot. The femoral arterial pulse was palpable on the right side, but no pulsations could be felt below that level. Oscillometric examination showed no evidence of pulsation. The skin temperature over the right great toe was 20 C (68 F). Pulses in the left leg were apparently normal. This case was interpreted as one of sudden thrombosis of the popliteal artery of the right leg. Ten hours of passive vascular exercise was given daily for ten days after which the treatment was diminished to three hours daily. After twenty-one days the nutrition of the right leg seemed quite adequate and as good as that of the left although the peripheral pulses were not palpable. The patient walked about without undue discomfort, and regional discoloration of the foot had disappeared.

The third patient was a man aged 52, an Italian, who was admitted to the hospital because of multiple aneurysms involving the subclavian axillary, femoral and popliteal arteries. The etiology of the aneurysms has not definitely been determined. The case will be reported elsewhere. Surgical intervention seemed indicated as the left femoral aneurysm had enlarged rapidly and had shown a "weeping hemorrhage" through the stretched integument over its surface. To avoid the rupture of the aneurysm with possible fatal hemorrhage the left common iliac artery was ligated. This was the only accessible proximal vessel, for the false aneurysmal sac had eroded into the pelvic area. At the close of the operation, pulsation in the aneurysm had ceased. The left foot had assumed a mottled, cyanotic appearance. The skin tempera-



ture had dropped. Passive vascular exercise was instituted at once and continued for three days. In this case the nutrition of the left leg was never markedly disturbed but it may be assumed that the passive exercises aided markedly in the rapid development of collateral circulation.

The fourth patient was a Jewess, aged 69, who was admitted to the hospital in a state of collapse. The diagnosis of mural cardiac thrombus was made. Shortly after admission the patient developed the classic signs and symptoms of embolus of the femoral artery. Passive vascular exercise was instituted at once and kept up continuously for three days, the circulation and nutrition of the leg improved promptly and seemed fairly well maintained throughout this time. However, the patient died suddenly from a pulmonary embolus. Permission for postmortem examination was not granted.

**GROUP 3 — *Thrombo-Angutis Obliterans*** — Four patients suffering from Buerger's disease were treated by passive vascular exercise. Two of these are reported as unimproved after three weeks of treatment. A third patient was a 34 year old Gentile who had failed to improve after two months of treatment, in fact, the degree of rest pain increased and a gangrenous area of the toe extended. This patient's condition later responded very well to daily intravenous injections of sodium citrate solution. In the fourth case, passive vascular exercise was resorted to in order to promote healing of pinch grafts placed over a granulating ulcer. After one month the grafts had healed well and treatment was discontinued. Passive vascular exercise was of doubtful value in this case.

**GROUP 4 — *Syphilitic Endarteritis*** — Treatment was given to only one patient in this group, a man, aged 60 who had been given antisyphilitic treatment irregularly over a period of twenty years. Intermittent claudication of six weeks' duration with absence of peripheral pulsations in the left leg in a syphilitic subject justified the diagnosis of syphilitic endarteritis. Passive vascular exercise was instituted with some symptomatic relief and a slight increase in the oscillometric readings.

#### SUMMARY

1 Fifty-one cases of organic vascular occlusion of the lower extremity were treated with passive vascular exercise.

2 Experience with these cases supports the contention that treating organic vascular obstructions by an intermittent negative pressure environment is physiologically sound.

3 Passive vascular exercise, given with the apparatus of Hermann, caused improvement in 80.5 per cent of thirty-six cases of arteriosclerosis obliterans affecting the major and secondary arteries of the extremity. In nine of the ten cases of sudden vascular occlusion, the treatment given was effective. In four cases of thrombo-angutis obliterans, no benefit was derived from passive vascular exercise. In one case of syphilitic endarteritis, the treatment was followed by moderate improvement.

4 In no case was there conclusive evidence that passive vascular exercise had, in and of itself, caused serious complications.

525 East Sixty-Eighth Street

**The Apex Beat** — If one places the patient in a good light it is as a rule comparatively easy to ascertain the position of the apex beat of the heart — Dr E. J. G. Beardsley, quoted by Fisher, Alexander. *Aphorisms in Clinical Medicine*. *Canad J Med & Surg* 77: 166 (June) 1935.

## THE GORDON TEST FOR HODGKIN'S DISEASE

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In 1932 Gordon<sup>1</sup> reported the observation of a meningoencephalitic syndrome following the intracerebral inoculation of rabbits and guinea-pigs with a sterile suspension prepared from lymph nodes of typical Hodgkin's disease and in the ensuing year<sup>2</sup> suggested this procedure as a valuable diagnostic aid. Van Rooyen<sup>3</sup> and other English investigators<sup>4</sup> have corroborated this work and have affirmed the specificity of this test. From the reports in the literature (summarized in the accompanying table) the test has been applied in seventy-seven cases of Hodgkin's disease and has been found positive in fifty-six instances (77.9 per cent). Of 101 controls, consisting of normal lymph nodes and nodes showing carcinoma, sarcoma, lymphosarcoma, "pseudoleukemia," leukemia, tuberculosis, lymphoid hyperplasia and adenitis, the test was negative in ninety-eight cases (97 per cent), the three positive tests having been reported recently by Manson,<sup>5</sup> two of which were cases of tuberculous lymphadenitis and one was of lymphoid hyperplasia.

At this time we record our results with three cases of Hodgkin's disease and with three other lymph nodes used as controls (metastatic adenocarcinoma, aleukemic lymphadenosis, lymphoid hyperplasia). A summary of the literature is included in this report.

#### GORDON'S TEST

**Method** — With aseptic precautions a lymph node is collected in a sterile test tube or petri dish. One or more grams is placed in a small sterile mortar under cover and the rest of the node is kept in a refrigerator. The tissue is cut into very small pieces and is ground into a fine emulsion, nutrient broth of pH 7.1-7.2 being added to make a 1:10 suspension. It is maintained in a refrigerator at from 0 to -4 C. for seven to ten days, and, before using, is tested for sterility aerobically and anaerobically. All lymph nodes in this study were obtained from live patients. If necropsy material is studied, the node should be removed aseptically, disinfected with absolute alcohol, and dipped into boiling water and then into ether. Phenol (0.5 per cent) may be added to the broth as a further precaution against contamination.<sup>3a</sup>

Of rabbits lightly anesthetized with ether, a short incision is made in the scalp and a tiny opening is drilled in the skull at a point 2 mm. lateral to the sagittal suture and 1.5 mm. anterior to the lambdoidal suture.<sup>3a</sup> Through this opening, 0.4 cc. of sterile suspension is slowly injected into the occipital lobe to a

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<sup>1</sup> Gordon M. H. *Rose Research on Lymphadenoma*. Bristol: John Wright and Sons Ltd. 1932. pp. 14, 48.

<sup>2</sup> Gordon M. H. *Remarks on Hodgkin's Disease*. *A Pathogenic Agent in the Glands and Its Application in Diagnosis*. *Brit. M. J.* 1: 641 (April 15) 1933.

<sup>3</sup> Van Rooyen C. E. (a) *A Biological Test in the Diagnosis of Hodgkin's Disease*. *Brit. M. J.* 1: 644 (April 15) 1933. (b) *Recent Experimental Work on the Etiology of Hodgkin's Disease*. *ibid.* 2: 562 (Sept. 23) 1933.

<sup>4</sup> (a) Van Rooyen C. E. *Some Properties of the Encephalitogenic Agent in Lymphadenomatous Tissue with Further Observations on Gordon's Biological Test in the Diagnosis of Hodgkin's Disease*. *Brit. M. J.* 1: 519 (March 24) 1934. (b) Ogilvie R. F. and Van Rooyen C. E. *A Case Demonstrating the Value of Gordon's Test in Hodgkin's Disease*. *Lancet* 2: 641 (Sept. 16) 1933.

<sup>5</sup> Manson M. H. *Biological Phenomena in Hodgkin's Disease*. *Minnesota Med.* 18: 263 (April) 1935.

depth of about 3 mm by means of a short fine needle. The skin is then sutured and the wound covered with collodion. In addition, 0.6 cc of the inoculum is injected into the marginal ear vein. The rabbits are weighed before the inoculation and daily thereafter.

**Positive Test**—After an incubation period of from two to six days (in one rabbit, sixteen days<sup>1</sup>), slight impairment of locomotion sets in, followed by a progressive spastic paralysis of the hind limbs. The gait becomes decidedly ataxic, and the animal may stagger and fall. In the more marked reactions retraction of the head, opisthotonos and convulsive movements are observed. Van Rooyen<sup>2a</sup> reported nystagmus, grinding of the teeth and urinary and fecal incontinence in some animals. Progressive wasting and weakness affecting particularly the hind quarters, are found in all cases. Death occurs frequently within three days to one month, usually in ten days. A larger number recover completely or pass into a chronic state.

At autopsy, gross examination reveals only a slight hyperemia of the meninges. Microscopically, usually little or no cellular infiltration in the brain is found, but with more active material Gordon noted a lympho-

a moderate anemia. Roentgenograms of the chest showed a large mediastinal mass. Biopsy of a cervical node revealed typical Hodgkin's disease.

Two rabbits were inoculated with a suspension that had been refrigerated for eleven days. Except for a gain in weight, no effects were noted. Two other rabbits were inoculated with the same suspension after thirty-two days of refrigeration. Again the test was negative.

**CASE 3**—H. H., a white woman, aged 22, presented the clinical picture of a typical Pel-Ebstein form of Hodgkin's disease, enlargement of the lymph nodes (left cervical and axillary) first appearing three months before hospitalization. Blood examination showed erythrocytes, 2,680 million, hemoglobin, 47 per cent (Sahli), leukocytes, 5,400, differential formula, normal. Maximum temperature, 103.8 rectal. Chest roentgenograms were normal. Biopsy of an axillary node showed Hodgkin's disease.

Two rabbits were inoculated with a suspension that had been refrigerated for ten days. One rabbit had been too deeply anesthetized and died twelve hours later. The other developed weakness of the hind limbs on the third day, followed by spastic paralysis of the hind limbs, slight spasticity of the fore limbs, increasing ataxia and loss of weight. On the fifth day, cervical rigidity and convulsive seizures were noted. The animal died on the sixth day. Autopsy revealed a hyperemia of the meninges. The brain was normal on microscopic examination. Aerobic and anaerobic cultures of the brain and meninges were negative.

**Controls**—Case 1. Biopsy revealed adenocarcinoma. Two rabbits were inoculated with a suspension ten days old. No effects were noted after four weeks of observation.

**CASE 2** Biopsy revealed lymphoid hyperplasia. Two rabbits, inoculated with a suspension fifteen days old, showed no abnormal effects after four weeks of observation.

**CASE 3** Biopsy revealed aleukemic lymphadenosis. Two rabbits were inoculated with a suspension ten days old. No effects were noted.

#### PROPERTIES AND NATURE OF THE PATHOGENIC AGENT

The extensive studies of Gordon<sup>1</sup> supplemented by those of Van Rooyen, have yielded interesting data pertaining to the characteristics of the pathogenic agent. It has been found in an active state several weeks after refrigeration at 0 to -4 C, and for at least six months and as long as two years after desiccation. It is relatively thermostable, resisting temperatures of from 65 C<sup>1</sup> to 73 C<sup>4</sup> for thirty minutes. When refrigerated it resists 0.5 per cent phenol for at least two weeks and 10 per cent ether for seventeen days, although the activity is decreased by the latter disinfectant. It is not inactivated by freezing suspensions to -190 C for ten minutes or tissue desiccates to -190 C for twelve hours or by exposure to ten skin unit doses of x-rays. Alkalis such as sodium hydroxide, sodium bicarbonate, ammonia or ammonium carbonate may reduce its pathogenicity considerably. Its activity is greatest when the  $p_H$  of the broth medium is from 6.8 to 7.3, the optimum being attained with phosphate buffered broth of  $p_H$  7.1<sup>4a</sup>. That the pathogenicity is increased by refrigeration, probably through autolysis of tissues, was an early observation of Gordon<sup>1</sup>. Later, Van Rooyen<sup>4a</sup> noted that its activity may be enhanced by maintaining the suspension at 37 C or by intense freezing in liquid air followed by rapid thawing. The agent seems to be present in a more active state or in greater amounts during the early or acute stage of the disease. But no correlation between the varied pathogenicity in different cases and the presence of any particular type of cell appears evident. It has been suggested that perhaps the larger proportion of fibrous tissue accounts for the lesser amount or absence of the agent in more chronic cases.

Summary of Results with Gordon's Test

Author	Hodgkin's Disease		Controls	
	Gordon Positive	Gordon Negative	Gordon Positive	Gordon Negative
Gordon <sup>1</sup>	30	5	0	67
Van Rooyen et al. <sup>4a</sup>	1	5	0	13
Ogilvie and Van Rooyen, 10.2.1942 (June 2) 1934	1	0	0	1
Dasen, Fisher and Fustiool, Rev. Assoc. med. argent. 48: 1397 (Dec.) 1934	1	0	0	0
Maeson <sup>5</sup>	9	6	0	17
d'Ovidio and Lucetich, Rev. Assoc. med. argent. 49: 372 (March) 1935	1	0	0	0
Bortolozzi, Diag. e tec. di lab. G. 273 (April) 1935	3	1	0	0
Totals	60	17	3	98
Percentages	77.9	22.1	3.0	9.0

cytic meningitis and perivascular lymphocytic infiltration in the brain substance. No inclusion bodies have been described<sup>4a</sup>. Cultures of the brain and meninges are sterile.

#### REPORT OF CASES

**CASE 1**—J. S., a white man, aged 35, complained of generalized itching of the skin of four months duration and a loss of 8 pounds (3.6 Kg.) in two weeks. Many larger and smaller, firm, discrete, movable, nontender lymph nodes were found in the supraclavicular fossae and in the right posterior cervical and subaxillary regions. A mediastinal mass was noted on roentgen examination. Herpes progenitalis was present. Biopsy of a cervical node revealed typical Hodgkin's disease.

Two rabbits were inoculated with a suspension that had been subjected to twenty-three days of refrigeration. Generalized weakness with slight spasticity of the hind limbs set in on the third day. Increasing ataxia and spasticity developed, and the animals became progressively weaker and lost weight. One rabbit died on the ninth day, the other on the tenth day after inoculation. Autopsy revealed hyperemia of the meninges. Sections of various parts of the brain showed no abnormal histologic manifestations. Aerobic and anaerobic cultures of the brain and meninges were negative.

Two control rabbits, inoculated with broth containing 0.5 per cent phenol, remained in perfect condition and gained in weight.

**CASE 2**—C. S., a white youth aged 17, complained of painless "swellings in the neck" which first appeared one year before and progressively increased in size. The supraclavicular, posterior cervical and right axillary nodes were firm, discrete, movable and considerably enlarged. Retromanubrial dullness was increased and widened. The spleen descended 2 cm. below the costal margin on inspiration. Blood examination revealed

Aerobic and anaerobic cultures of the tissues and suspensions, as well as of the brain, meninges and heart's blood of rabbits manifesting a positive test, have been consistently negative. Gordon<sup>2</sup> has reported the finding, on stained films, of "spherical granules" closely resembling Paschen bodies. This has been confirmed by Coles<sup>6</sup> recently. By a special technic Van Rooyen<sup>4b</sup> has adequately demonstrated the filtrability (Berkefeld, Seitz) of the agent.

Attempts to transmit the pathogenic factor from one rabbit to another have been uniformly unsuccessful. Some rabbits, when completely recovered, were found to be immune to a second dose of the same material, others, on the contrary, were more susceptible to reinoculation.<sup>4a</sup> In one rabbit, an immune serum capable of inactivating the pathogenic agent was obtained,<sup>2</sup> further studies of a like nature have not been recorded.

Thus far, the nature of the pathogenic factor is unknown. Gordon<sup>2</sup> considered it a virus, but the inability to transmit the experimental disease as well as the observation of an increased susceptibility to reinoculation of recovered rabbits, does not support this hypothesis. The finding of neutralizing antibodies in the serum of a recovered rabbit is of interest and needs confirmation.

More recently, Friedemann and Elkeles<sup>8</sup> observed a clinical syndrome produced in rabbits by the intrathecal or intracerebral inoculation of normal human bone marrow, spleen or leukocytes, a syndrome which bore a striking resemblance to that following the use of suspensions of Hodgkin's nodes. They felt that these symptoms might be due to the action of the proteolytic enzyme of Jochmann and Lockmann and suggested its identity with the encephalitogenic factor in Hodgkin's disease. Studying this relationship Mackenzie and Van Rooyen<sup>9</sup> concluded that the two factors are not identical. Further they obtained no evidence indicating a proteolytic action on brain tissue by the agent in Hodgkin's disease. Van Rooyen<sup>4a</sup> suggested that the latter agent may be a neurotoxin, having a predilection for the brain tissue of rabbits and guinea-pigs. That the symptoms are not due to trauma seems well established.<sup>3a</sup>

#### COMMENT

Prior to the report of Manson,<sup>5</sup> the Gordon test appeared to be specific for Hodgkin's disease for the presence of an encephalitogenic agent in normal bone marrow, spleen or leukocytes (pus) does not militate against the significance of a similar agent restricted to the lymph nodes of this disease. Hence the uniformly negative controls reported by other investigators prompts the question whether the two Gordon positive cases of tuberculous adenitis contained any pus and furthermore arouses interest in the ultimate course of the positive case of "hyperplasia".

Since about one fourth of the reported cases of Hodgkin's disease gave negative tests, and since the positive tests were more frequently observed in early or acute cases, the value of Gordon's test if ultimately

proved, seems to be limited to the diagnosis of early or histologically atypical cases. Further trial by different investigators is essential, however, before it will be possible to pass final judgment on its usefulness or specificity.

#### SUMMARY

1. Gordon's test was positive in two cases of early Hodgkin's disease and negative in a chronic case of one year's duration. Three abnormal lymph nodes, used as controls, gave negative tests.

2. A more extensive trial by different investigators is advocated, in order that the significance of the test may be properly evaluated.

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## THE TEMPERATURE OF THE SKIN SURFACE

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The temperature of the surface of the skin varies with the environmental temperature, with the temperature of the body and with conditions in the skin and in the structures lying beneath it.

#### VARIATIONS IN DIFFERENT REGIONS OF THE SKIN

In a comfortable environment, the temperature of the skin surface varies in different regions of the body. The temperature of the skin surface of the trunk usually varies between 33.5 and 36.9 C (92.3 and 98.4 F).<sup>1</sup>

The temperature of the skin surface is lower over superficial veins than it is over superficial arteries. It is lower over protruding and markedly curved parts, such as the nose, ears, fingers and toes. The temperature of the skin is higher over muscles than over bone or tendons over an active organ than over one at rest.<sup>1</sup> As a rule stout persons (because of their thicker layer of subcutaneous fat) have a much lower skin temperature than thin ones.<sup>1</sup> The symmetrical areas are kept at about the same temperature. Usually these areas differ within 0.5 and 1 degree C.<sup>1</sup> I have observed even greater temperature differences of the skin surface of the symmetrical regions of the body. This would indicate that these areas may vary somewhat in their physiologic activity as well as in their configuration.

In general, the temperature of the skin covering the extremities is lower than that of the skin covering the head and the torso. The skin surface temperature of the extremities also shows the greatest fluctuations when the body is exposed to changing environmental temperatures. When there is the possibility that the body temperature may rise because of an increase in metabolism or because of the high temperature of the surrounding medium, the skin surface temperature of the extremities increases so that it may approach or actually reach the same temperature level as that which

6 Coles A. C. quoted by Gordon M. H. Recent Advances in the Pathology and Treatment of Lymphadenoma. *Proc. Roy. Soc. Med.* 27: 1035 (June) 1934.

7 Gordon (footnotes 1 and 2).

8 Friedemann Ulrich and Elkeles A. Studies on the Etiology of Blood Diseases. A Pathogenic Agent in Normal Human Bone Marrow. *Brit. M. J.* 2: 1110 (Dec. 16) 1933. Friedemann Ulrich. The Pathogenic Agent in Normal Human Bone Marrow. Its Nature and Relationship to the Lymphadenoma Agent of Gordon. *ibid.* 1: 517 (March 24) 1934.

9 Mackenzie Ian and Van Rooyen C. E. Relationship of Jochmann's and Other Enzymes to the Encephalitogenic Agent in Lymphadenomatous Glands. *Brit. M. J.* 1: 406 (March 2) 1935.

From the Departments of Physical Therapy, Mount Sinai and Beth Israel Hospitals.

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1 Benedict F. G. The Skin Temperature of Humans. *Ergebn. d. Physiol.* 24: 594 1925.

2 Pfeleiderer H. and Buttner K. The Physiologic and Physical Basis of Thermometry of the Skin. *Leipzig. Johann Ambrosius Barth* 1935.

3 Kunkel A. J. On the Temperature of the Human Skin. *Ztschr. f. Biol.* 25: 55 1889.

4 (a) Cobet R. The Skin Temperature of Man. *Ergebn. d. Physiol.* 25: 439 1926. (b) Foged J. Normal Skin Temperature. *Skandin. Arch. f. Physiol.* 64: 251 1932.

exists over the head and torso. On exposure to cold, the skin surface temperature of the extremities becomes much lower than that of the rest of the body. I have observed the skin surface temperature of the toe to go as low as 15 C (59 F) on exposure to cold and as high as 45 C (113 F) on exposure to heat.

While the temperature of the exterior of the body fluctuates widely, that of its interior varies between narrow limits. Indeed, it would appear as if the pur-

Cohn and Steele<sup>12</sup> noted the occurrence of fever in a case of heart failure in which no pathologic condition other than cardiac was present to account for the temperature elevation. A possible explanation which they offer is that the elevation of the temperature of the interior of the body is due to a slowing of the blood flow to the surface as well as to other parts.

#### VARIATIONS DURING FEVER

In fever the temperature gradient of the skin surface that normally obtains disappears, so that the temperatures of the various parts of the skin surface of the body reach a more or less common level. When fever is produced by physical means through the application of heating energies, the temperature gradient of the skin surface disappears even before the internal temperature (as judged by the rectal thermometer) begins to rise. As the body temperature becomes more elevated the skin surface temperature rises and at high temperatures such as for example, around 106 F (41.1 C) the temperature gradient may become reversed, i. e., the temperature of the skin surface of the toes may go higher than the temperature of the skin surface of the torso (chart 1).

When the body supplies its own energy to create a fever (as after the intravenous injection of typhoid vaccine) the skin surface temperatures, particularly the temperature of the toes, may remain as they were originally or they may even go lower, while the internal temperature is being elevated. This is the period in which the subjective sensation of a chill occurs. After the systemic temperature elevation has become established, the skin surface temperature rises. During defervescence of the fever the skin surface temperature of the toes may remain comparatively high, so as to encourage the loss of heat to the environment. If the objective of a therapeutic fever is to increase the blood flow in a case of insufficient peripheral circulation it

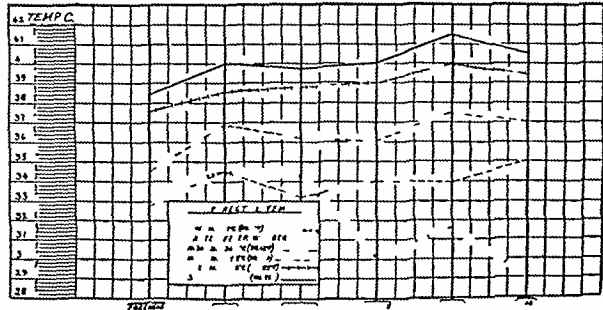


Chart 1—Skin surface temperature in fever following the use of diathermy and phototherapy for gonorrheal salpingitis in a woman aged 28

pose of the marked variations in skin surface temperature is to keep the temperature of the interior relatively constant. There is a continual balancing between heat production and heat loss.

#### INFLUENCE OF AGE

Age has an influence on skin surface temperatures. With old age the temperature becomes lower. Basal metabolism diminishes with increasing years.<sup>5</sup> In children, Kunkel<sup>2</sup> and Talbot<sup>6</sup> state that skin surface temperatures are lower than in the adult, while Cobet<sup>4</sup> describes higher temperatures. The heat regulating apparatus is not fully developed at birth and is almost completely absent in the premature infant. The temperature of the skin of the premature infant as well as that of the body, is affected directly by the surrounding temperature and to a greater extent than it is in the normal infant.

#### EFFECT OF CHANGES IN METABOLISM

The close connection between the temperature of the extremities and the heat dissipating mechanism is shown by the fact that under constant environmental conditions a simple linear relationship is found between the temperature of the great toes and the basal heat production per unit of surface area.<sup>8</sup> There is a diurnal variation in the skin surface temperature of the feet.<sup>9</sup>

Muscular exercise influences the temperature of the skin. During the first few minutes of exercise the temperature of the skin falls and later rises.<sup>10</sup>

Psychic factors may influence the temperature of the surface of the skin. In cases of hyperemia of the face due to excitement, there occurs a rise in the skin surface temperature over the cheeks.<sup>11</sup>

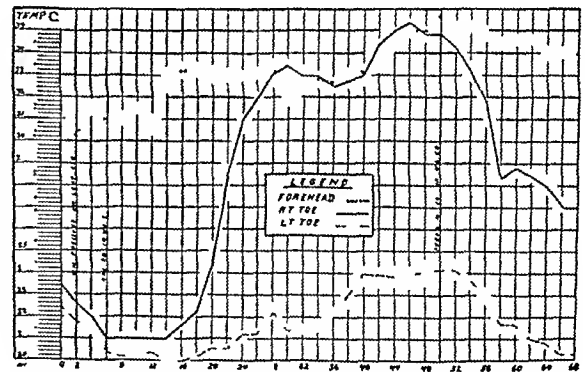


Chart 2—Effect of forearm in hot water (43.5 C) and left leg constricted in cuff with pressure of 60 mm of mercury in a normal woman aged 21

would seem more rational to produce fever by physical means, since the initial stage of vasoconstriction is avoided.

#### VARIATIONS IN HEAT TOLERANCE IN DIFFERENT PARTS OF THE BODY SURFACE

There is a marked difference in the heat tolerance of various parts of the surface of the body. The extremities, which are normally more responsive to changes in systemic temperature, also appear to possess greater

5 Benedict F G. Basal Metabolism. II. An Index of Vital Activity. Carnegie Institution of Washington News Service Bull. 11. 99 (April 5) 1931.

6 Talbot F B. Skin Temperature and Its Relationship to the Heat Regulation of the Body. Klin Wchnschr. 12: 809 (May 27) 1933.

7 Talbot F B. Skin Temperatures of Children. Am J Dis Child. 42: 965 (Oct. part 2) 1931.

8 Maddock W S and Collier F A. The Role of the Extremities in the Dissipation of Heat. Am J Physiol. 106: 589 (Dec.) 1933.

9 Kirk E. Investigation on the Influence of Normal Sleep on the Temperature of the Foot. Skandinav Arch f Physiol. 61: 71 (Jan) 1931.

10 Burton A C. New Technic for the Measurement of Average Skin Temperature Over Surfaces of the Body and the Changes in Skin Temperature During Exercise. J Nutrition. 7: 481 (May) 1934.

11 Reichenbach H and Heymann B. Investigation on the Effects of Climatic Factors on Man. Ztschr f Hyg u Infektionskr. 37: 1 1907.

12 Cohn A E and Steele M J. Unexplained Fever in Heart Failure. J Clin Investigation. 13: 853 (Nov.) 1934.

sensitivity toward an increase in their normal temperature, i. e., they have the lowest tolerance temperatures. In general, those portions of the body surface which have the lowest tolerance temperatures are also characterized by their ability to endure heating for the longest periods. In fact, the tolerance time and the tolerance temperature rise are approximately in inverse ratio. The ability of the skin of the forehead, of the feet and of the hands to tolerate heat better than other parts of the skin surface of the body and yet maintain lower temperatures may possibly be explained by increased sweating of these parts, by the presence of

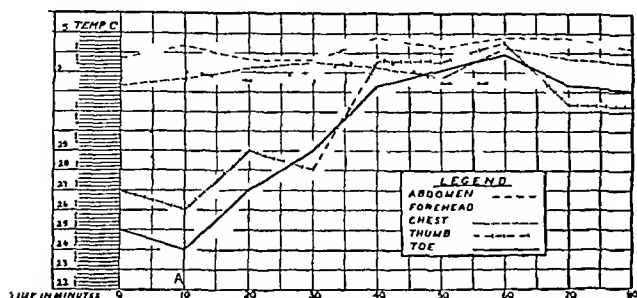


Chart 3—Reaction to acetylsalicylic acid (10 grains or 0.6 Gm) of a normal woman aged 26. A acetylsalicylic acid

arteriovenous anastomoses, and by the greater number of thermal nerve endings.<sup>13</sup>

#### EFFECT OF COLD

When cold is applied to a local area, the skin surface temperature in that area falls quickly. On the application of an ice bag, for example, the skin temperature may be diminished 20 degrees C (36 degrees F) within a quarter of an hour and may reach a minimal 5 to 6 C (41 to 42.8 F) in from forty to sixty minutes. By conduction the effect may extend to the underlying tissues.<sup>14</sup> On immersion of the body in cold baths, the internal temperature may at first rise a few tenths of a degree.<sup>14</sup> The subsequent course of the temperature varies with the constitution of the individual, the thickness of the subcutaneous fat layer and the length of time of immersion.

#### SKIN SURFACE TEMPERATURE AS A DIAGNOSTIC METHOD FOR DETERMINATION OF VASCULAR STATUS

The ability of the skin surface temperature of the extremities to fluctuate widely makes it possible to evaluate the vascular status of these parts. If one forearm is immersed in water at 110 F (43.3 C) it is possible to observe a rise in the skin surface temperature of the toes in a normal subject.<sup>15</sup> I have observed that in a normal subject the temperature of the skin of the great toe rises to approximately the same level as the skin surface temperature of the forehead. This rise in the skin surface temperature of the toe is due to the activity of the thermoregulatory mechanism in its effort to resist the elevation of body temperature

that would occur if the body did not utilize its ability to increase heat dissipation by augmenting the vascular flow to the extremities.

If this flow is interfered with, as by causing a constriction of the normal leg with a cuff inflated to the equivalent of 60 mm pressure, no rise or a much restricted one occurs in the temperature of the toes (chart 2). The inability of the toe temperature to rise under these circumstances also occurs when the circulation has been restricted by some pathologic condition, such as arteriosclerosis, thrombo-angitis obliterans, varicose veins or embolism.

If the forearm is immersed in very cold water, it will be observed that the temperature of the skin surface of the toe becomes lower. Under these conditions the body is evidently endeavoring to maintain its temperature level by shutting down on heat loss. In the presence of sufficiently severe vascular pathologic changes, such as arteriosclerosis and thrombo-angitis obliterans, the skin surface temperature of the toe does not go lower in response to the application of cold applied to the forearm.

When air heated to about 100 F (37.8 C) is applied by means of a thermostatically controlled heating hood, it is observed that the skin surface temperature of the toe rises to about the same level as the skin surface temperature of the forehead. When the normal leg is constricted by means of a cuff inflated with air to a pressure of 60 mm of mercury so as to embarrass the venous return, the toe temperature rises more slowly and does not reach as high a level as in the unconstricted leg. In cases of venous disturbance, as in varicose veins and phlebitis, the skin surface temperature response to direct heating is lower than in the normal. In cases of arteriosclerosis, on the other hand, the skin surface temperature of the toe frequently rises above that of the forehead. In thrombo-angitis obliterans, because the pathologic processes involve both veins and arteries, the temperature response of the toe may resemble that of the normal. When the pathologic process primarily involves the veins (as in varicosities)

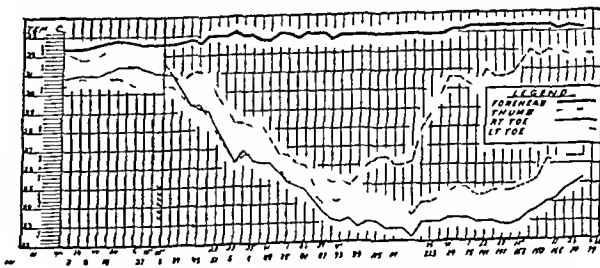


Chart 4—Effect of coffee (two cups) on a normal man aged 20

or the arteries (as in arteriosclerosis), it is possible to make the diagnostic differentiation by observing the changes in the temperature of the skin surface of the toe when the leg is exposed to heat directly.

The direct application of cool air to the lower extremities rapidly causes a drop in the skin surface temperature of the toes. This response is delayed and diminished in the presence of vascular disease, such as in arteriosclerosis and thrombo-angitis obliterans.

The application of cold and heat locally and at a distance puts the vascular machinery "under a load," as it were, permitting one to gain a still more definite idea of the integrity of the peripheral circulation.

13 Bazett H C, McGlone P, Williams R G and Lufkin H M. Sensation. I. Depth Distribution and Probable Identification in the Prepuce of Sensory End Organs Concerned in Sensations of Temperature and Touch. *Thermometric Conductivity Arch Neurol & Psychiat* 27: 489 (March) 1932. Grant R T. Observations on Direct Communications Between Arteries and Veins in the Rabbit's Ear. *Heart* 15: 281 (Dec) 1930.

14 Gibson J H Jr and Landis F M. Vasodilatation in the Lower Extremities in Response to Immersing the Forearms in Warm Water. *J Clin Investigation* 11: 1019 (Sept) 1932.

15 von Liebermeister C. *Handbuch der Pathologie und Therapie des Fiebers*. Leipzig 1875.



#### THE USE OF SKIN TEMPERATURE IN DIFFERENTIATING BETWEEN ORGANIC OCCLUSION AND VASOSPASM

Observations of changes in the skin surface temperature of the toes in differentiation between vasospasm and organic occlusion have been made by several men. It has been shown that the removal of the sympathetic vasoconstrictor influence caused an elevation of the skin surface temperature of the extremities when vasospasm existed but not when occlusive organic disorder was the cause of the vascular difficulties.<sup>16</sup> The sympathetic vasoconstrictor influence may be removed by the induction of anesthesia, either general, spinal or local.<sup>1</sup>

#### THE USE OF SKIN TEMPERATURE AS A DIAGNOSTIC PROCEDURE IN CONDITIONS OTHER THAN PERIPHERAL VASCULAR DISEASES

The temperature of the skin may be used as an aid in the diagnosis of conditions other than those of peripheral vascular diseases.

The temperature of the skin surface has been measured for its diagnostic value in several neurologic conditions. It has been found possible to differentiate between fever of central origin and other types of fever by noting the difference in the temperature of the skin surface.

There is a relationship between vascular supply and the psychic centers, as indicated by experiments in which the surface temperature of circumscribed skin areas was raised by suggestion in hypnosis.<sup>18</sup>

I have noted that while high skin surface temperatures are found in the region of joints during the presence of an acute arthritis, low surface temperatures occur over the joints in chronic arthritis. Others have made similar observations.<sup>19</sup>

Information concerning the temperature of the skin surface may prove of value to the dermatologist. Thus observations of the surface temperature in areas of alopecia areata show no essential difference between these areas and the adjoining normal skin, indicating that this condition is not due to restriction of local blood supply.<sup>20</sup> Changes in skin surface temperature occurring in leprosy have been described.<sup>21</sup>

#### SKIN SURFACE TEMPERATURE CHANGES AS A METHOD FOR EVALUATING THE THERAPEUTIC INFLUENCE OF DRUGS AND PHYSICAL MEASURES

The local skin surface temperature is affected by the rate of capillary circulation.<sup>22</sup> This permits the evaluation of the effects of foods, drugs and other measures on the peripheral circulation simply by noting the changes in skin surface temperature. By observing

changes in the skin surface temperature of the body, particularly of that part which goes through the greatest range of change—the toe—it has been learned for example, that acetylsalicylic acid causes vasodilatation (chart 3). This may explain the value of this drug and of other similar acting drugs as antipyretics.<sup>23</sup> It may also explain the subjective relief that this drug appears to afford sufferers from chronic arthritis (in which condition endo-arterial changes in the blood vessels supplying the joint have been described), and those suffering from peripheral vascular disease.

The skin surface temperature reaction to tobacco has been described. In many individuals, smoking causes peripheral vasoconstriction as evidenced by a lowering of the surface temperature.<sup>24</sup>

Numerous studies have been made to show the effect of various physical therapeutic measures, such as the application of hot and cold baths, phototherapy, diathermy, and short wave currents.<sup>25</sup>

Alcohol causes a peripheral vasodilatation, as evidenced by the rise in skin surface temperature of the toe.<sup>26</sup> I observed that the rate of rise is faster after the drinking of whisky than of wine.

The ingestion of coffee as a rule causes a definite lowering of the skin surface temperature of the toe (chart 4). In my experiments the coffee was administered at a temperature of about 37.5 C (99.5 F).

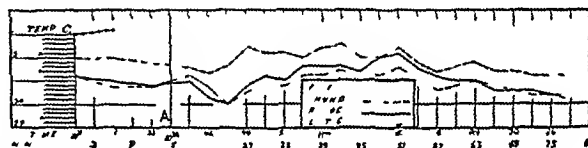


Chart 5.—Effect of decaffeinated coffee (two cups) on a normal man aged 20. A decaffeinated coffee.

Decaffeinated coffee does not produce this change (chart 5). Caffeine, if administered hypodermically in the form of caffeine with sodium benzoate, or by mouth as caffeine citrate, causes a decided lowering of the skin surface temperature of the toe.

Thyroid increases the temperature of the skin surface of the extremities. Amyl nitrate does likewise, while pilocarpine decreases the temperature of the skin of the extremities.<sup>2</sup> The latter drug acts by stimulating the sweat glands, causing cooling by evaporation of the sweat without any preceding increase of the skin surface temperature.<sup>4a</sup>

The application of tincture of iodine and of mustard oil causes an initial lowering of the skin surface temperature at the site of application, followed by an increase of from 1 to 3 degrees C, lasting for from five to ten hours. If active hyperemia is produced by rubbing, the skin surface temperature rises according

16 Royle N D and Hunter J L. Symptomatology of Complete Transverse Lesions of Spinal Cord. Experimental Study. Australian J Exper Biol & Med Sc 1: 57 (June) 1924.

17 Ipsen J. The Arteries and Anesthesia. Acta chir Scandinav 65: 487 1929. Morton J J and Scott W J M. The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities. J Clin Investigation 9: 235 (Oct) 1930. White J C. Diagnostic Blocking of Sympathetic Nerves to Extremities with Procaine. J A M A 94: 1382 (May 3) 1930.

18 Berger H. Investigation on the Psychic Influence on Skin Temperature. J Psychol Neurol 27: 209 1922.

19 Mainone M. Skin Temperature in Acute and Chronic Diseases. Particularly Chronic Nervous Diseases. Ztschr f d ge Neurol & Psychiat 144: 404 1933. Passinkoff E S and Masiel E I. Skin Temperature of Joints in Chronic Rheumatism of Knee. Acta rheumatol 6: 17 (Dec) 1934. Pemberton Ralph. Arthritis and Rheumatoid Conditions. Their Nature and Treatment. Philadelphia: Lea & Febiger 1933.

20 Roxburgh A C. Skin Temperature in Alopecia Areata. Brit J Dermat 43: 20 (Jan) 1931.

21 Stein A A. Skin Temperature in Leprosy. Internat J Leprosy 2: 403 (Oct Dec) 1934.

22 Arøgh August. The Anatomy and Physiology of Capillaries. ed 2. New Haven Conn: Yale University Press 1929. Lewis Thomas. The Blood Vessels of the Human Skin and Their Responses. London: Shaw and Sons Ltd 1927.

23 Geigel R. Skin Temperature in Fever and After the Administration of Antipyretics. Verhandl d phys med Gesellsch zu Würzburg 12: 1 1889.

24 Wright I S and Moffat Dean. The Effects of Tobacco on the Peripheral Vascular System. J A M A 103: 318 (Aug 4) 1934. Johnson H J and Short J J. The Effect of Smoking on Skin Temperature. J Lab & Clin Med 19: 962 (June) 1934.

25 Strasser R. Effect of Partial Physical Therapy on Variations of Human Cutaneous Heat Radiation. Ztschr f d ges phys Therap 45: 62 1933. Bierman William. The Effect of Iohothermal Radiations upon Cutaneous and Subcutaneous Temperatures. Arch Phys Therapy 14: 717 (Dec) 1933. Bierman William and Tarhell I A. Temperature Determinations During Local Application of Diathermy. (A Preliminary Report) ibid 15: 645 (Nov) 1934. Bierman William and Schwarzschild M. The Therapeutic Use of Short Wave Currents. New England J Med 213: 509 (Sept 12) 1935.

26 Miles W R. Alcohol and Human Efficiency. Experiments with Moderate Quantities and Dilute Solutions of Ethyl Alcohol on Human Subjects. pub 333. Carnegie Institution of Washington 1924. Cook E N and Brown G E. The Vasodilating Effects of Ethyl Alcohol on the Peripheral Arteries. Proc Staff Meet Mayo Clin 7: 449 (Aug 3) 1932.

to the strength of the stimulus, to the irritability of the individual and to the initial skin temperature<sup>4a</sup>

It may be of interest to evaluate the effect of other physical procedures and the effect of the ingestion of various food and drug substances on the peripheral circulation. While this objective evidence may not be the sole guide for the application of various therapeutic measures, it does give a definite standard by means of which these measures may be judged.

#### EFFECT OF ENVIRONMENTAL TEMPERATURE, HUMIDITY AND AIR MOTION

Observations of skin surface temperatures should be made in a temperature-controlled room, since the factors of room temperature, humidity and rate of air motion influence the temperature of the skin.

Systematic investigations on the relationship between room temperature and skin temperature have been made.<sup>27</sup> A positive correlation has been described between skin temperature and air temperature, the skin temperature increasing at the rate of 0.27 C per degree centigrade of room temperature, with a corresponding shift of 3 per cent of the total heat from radiation and convection to the latent heat of evaporation.<sup>28</sup> At the higher room temperatures, the physiologic action of sweating cools the skin.<sup>29</sup>

Other things being equal, heat loss is proportional to the square root of the velocity of air motion.<sup>30</sup>

#### INSTRUMENTS FOR MEASURING SKIN SURFACE TEMPERATURE

For measuring the temperature of the surface of the skin, the mercury thermometer is a relatively unsatisfactory instrument. Lacking other instruments for the purpose, however, it may be used, fitted with a wedge of cork to prevent loss of heat to the air,<sup>31</sup> or in a special shape with the lower portion flattened and bent at right angles to the stem. The mercury thermometer is objectionable because of its slowness in recording and because covering the surface distorts the temperature of the region.

The development of the thermocouple has simplified the study of skin surface temperatures. This instrument depends on the production of a minute electric current when the joined ends of two dissimilar metals are heated. For routine purposes I have found that one constructed with an automatically compensated cold junction is the most satisfactory. Resistance thermometers for the same purpose have been described, and also instruments for the measurement of the radiation of heat from the body's surface.<sup>32</sup>

With the exception of the studies made in recent years, but few investigations have been conducted during the century that has passed since the develop-

ment of an instrument suitable for the measuring of skin surface temperatures. It may well be that the relatively simple and accurate measuring instruments now available may help to usher in a period of intensive research, which should be fruitful in clarifying the diagnosis and the treatment of peripheral vascular as well as many other diseases.

471 Park Avenue

#### OBSERVATIONS ON THE TREATMENT OF CHRONIC ARTHRITIS WITH VITAMIN D

EMIL G. VRTIAK, MD

AND

ROSS S. LANG, MD

CHICAGO

Our interest in vitamin D therapy was stimulated by C. I. Reed, Ph.D., assistant professor of physiology, University of Illinois College of Medicine, who observed improvement of symptoms in two patients with arthritis whom he had treated for hay fever with vitamin D concentrate. One of these patients was a man aged 46 and the other, a woman aged 47. The former had suffered with chronic atrophic arthritis for seven months and the latter had suffered with it for fifteen years in addition to hay fever.

We have treated twenty cases of atrophic arthritis with daily doses of viosterol of from 150,000 to 250,000 U. S. P. X units of vitamin D.<sup>1</sup> Ten patients were men and ten were women. The youngest patient was 23 years of age and the oldest was 60. Fifty-five per cent of the patients were between 40 and 60 years of age.

Twelve, or 60 per cent, of the cases showed a varied degree of improvement, as shown in the accompanying table. Eight, or 40 per cent, did not improve.

The average age of the patients in the markedly improved group was 43 years, in the moderately improved, 43½ years, in the slightly improved, 49 years, of those in whom no improvement was noted, 41 years.

The average duration of the disease in the improved group was twelve years, in the moderately improved, two and three-fourths years, in the slightly improved, six years, in the not improved, ten years.

The average length of treatment in the improved group was three months, in the moderately improved group, ten months, in the slightly improved, seven and three-fourths months, in the not improved group, three and one-sixth months.

Of sixteen patients on whom blood counts had been made before treatment, five had red blood cell counts under 4,000,000. The hemoglobin in these five cases was 50, 57, 68, 75 and 90 per cent. Their average weight was 113 pounds (51 Kg.). Of these anemic and undernourished patients, four showed no improvement and one showed moderate improvement.

X-ray studies of the joints of the patients previous to treatment showed bone atrophy. Reexamination in five cases following treatment did not show any appreciable change in bone density.

From the Department of Medicine, Rush Medical College, University of Chicago.

1 The viosterol 850,000 units (U. S. P. X) of vitamin D per gram was supplied by Mead Johnson & Co.

27 Kisskalt K. Heat Loss of Man in Rooms of Varying Temperatures. *Arch. f. Hyg.* 63: 287, 1907.

28 Phelps E. B. and Vold A. Studies in Ventilation. Skin Temperature as Related to Atmospheric Temperature and Humidity. *Am. J. Pub. Health* 24: 959 (Sept.) 1934.

29 Kuno Y. and Ikuchi K. On Sweating in Man Caused by the Effect of Heat and Also the Variations of the Body and Skin Temperature. *J. Orient. Med.* 9: 35 (Sept.) 1928.

30 Liese W. Skin Temperature Measurement in Resting and Working Persons Under Influence of Weak Air Currents. Experiment in Kathermometry. *Arch. f. Hyg.* 104: 24, 1930.

31 Stewart G. N. Measurement of the Temperature of the Skin. *Arch. internat. de pharmacodyn. et de therap.* 38: 444, 1930.

32 Burton A. C. A New Technique for the Measurement of Average Skin Temperature Over Surfaces of the Body and the Changes in Skin Temperature During Exercise. *J. Nutrition* 7: 481 (May) 1934. Campbell Smith F. A Platinum Resistance Thermometer for Measuring the Temperature of the Skin. *Lancet* 1: 687 (March 29) 1930. Hardy J. D. The Radiation of Heat from the Human Body. I. An Instrument for Measuring the Radiation and Surface Temperature of the Skin. *J. Clin. Investigation* 13: 593 (July) 1934. II. A Comparison of Some Methods of Measurement. *ibid.* p. 605.

Dreyer and Reed<sup>2</sup> found an excess of calcium deposits in most of the tissues in dogs following the administration of toxic doses of vitamin D. When administration was stopped and the animals were allowed to recover, the tissues showed calcium contents within the normal range.

Shelling and Jackson<sup>3</sup> found no excessive calcium deposits in tissues of human patients brought to autopsy after long periods of treatment with viosterol. They used relatively small doses.

Nausea developed in all our patients. In several, frequency of urination and nocturia developed.

#### SUMMARY AND CONCLUSION

Twenty patients with chronic atrophic arthritis were treated with massive doses of vitamin D.

Two patients showed marked improvement, six moderate improvement, four slight improvement and

#### Results of Treatment with Vitamin D in Twenty Cases

	Number	Ages	Duration of Disease, Years	Length of Treatment, Months	Blood Count		
					Red Blood Cells per Cubic Mm.	White Blood Cells per Cubic Mm.	Hemoglobin per Cent
Markedly improved Average	2	50	4	2	4,480	7,400	0.85
	1	40	24	4	4,100	9,200	0.85
		43	12				
Moderately improved	6	37	1	1/2	4,600	6,000	0.90
		39	1 1/2	1 1/2	4,780	6,000	0.90
		44	2	12	3,000	6,200	0.65
		41	2	12	4,200	7,400	0.84
		40	4	12	4,000	9,800	0.60
		49	6	13	4,500	9,000	0.60
Average		43 1/2	2 3/4	10			
Slightly improved	4	28	2	4	4,100	7,400	0.94
		44	7	7	4,100	6,800	0.92
		57	6	8	4,800	10,800	0.85
		66	13	12			
Average		49	6	5 1/4			
Not improved	8	23	1 1/2	1	4,400	6,800	0.85
		28	2	1 1/2	4,240	6,800	0.80
		39	4	2	4,700		0.90
		39	7	2			
		44	8	2			
		47	1	3 1/2	3,500	13,000	0.75
		57	14	1 1/2	3,400	8,400	0.77
		60	30	6			
Average		41	10	3 1/6			
Total	20						

eight no improvement. These results were not unlike those obtained with a number of other methods of treatment or with methods used to produce only symptomatic relief.

Undernourished and anemic patients showed the least improvement.

Roentgenograms in five cases before and after treatment showed no change in bone density.

Nausea developed in all patients, in a few, frequency of urination and nocturia.

This series of cases is too small for an estimate to be made of the value of vitamin D in the treatment of chronic arthritis but is sufficient to indicate a conservative attitude toward this form of treatment.

1758 West Harrison Street

2 Dreyer, Irving, and Reed, C. I. The Treatment of Arthritis with Massive Doses of Vitamin D. Arch. Phys. Therap., 16: 337-340 (Sept.) 1935.

3 Shelling, D. H., and Jackson, Deborah. Calcium and Phosphorus Studies: Effect of Standardized Viosterol on Human Tissues. Necropsy Report of Thirteen Cases Showing no Tissue Damage. Bull. Johns Hopkins Hosp., 55: 314 (Nov.) 1934.

## Clinical Notes, Suggestions and New Instruments

### POISONING BY CHICHESTER'S PILLS

Lyle Motley, M.D., and J. L. McGehee, M.D.  
Memphis, Tenn.

Though abortifacients are widely advertised and by inference extensively used, reports of serious toxic results from their use are rare.

#### REPORT OF CASE

**History.**—A white married woman, aged 22, entered the hospital with the complaint of epigastric pain and vomiting of two and a half days' duration. She had not voided urine for seventy-two hours.

**Examination.**—The patient was obviously ill. Her face was pale and somewhat puffy. General examination was negative except for diffuse tenderness of the abdomen, most marked in the lower part bilaterally. Pelvic examination showed blood coming from the cervix, which was gaping open, soft and edematous. The uterus was enlarged to the size of an eight weeks pregnancy. No masses were palpable on either side.

Blood examination revealed red cells 3,000,000, hemoglobin 6 Gm. per hundred cubic centimeters, leukocytes 18,600, polymorphonuclear neutrophils 94 per cent, lymphocytes 6 per cent. A catheter obtained 7 ounces (200 cc.) of dilute blood and it was stated by the patient and her husband that this was the first fluid that had left her bladder in seventy-two hours.

After examination the patient admitted having introduced the temporal part of horn rimmed driving glasses into her vagina and as far as she knew into the cervix. This was done several times the first seven days previously and the last time the night before the onset of symptoms two and a half days previously. On the last occasion she felt as though "something gave way" and, in view of the anuria and the large amount of blood obtained from the bladder, a cystoscopic examination was done by Dr. T. D. Moore considering the possibility that the bladder had been penetrated. The bladder was found intact and shortly afterward the laboratory reported a blood nonprotein nitrogen of 250 mg. per hundred cubic centimeters.

Further questioning brought forth the admission that she had taken twenty-eight Chichester pills and one box of Snyder's pills, the exact time of taking not being remembered by the patient, but within the past few days.

Apparently the uterus was draining freely, the temperature and leukocytosis were not excessive and, except for cleansing douches, no local measures were used, the outcome of the obvious severe nephritis being awaited.

**Subsequent Course.**—Mild stupor appeared shortly after the patient was admitted and cleared to a large extent within forty-eight hours. The temperature did not go above 99.5 F. and after the first seven days did not go above normal. A blood transfusion was given and adequate attention to the physiologic needs regarding water balance, calories and minerals being given intravenously. The leukocytes never went above the original figure and the red cells gradually rose to 4,500,000, with hemoglobin of 12 Gm. per hundred cubic centimeters. The blood nonprotein nitrogen rose to 444 mg. with creatinine as high as 10.22 mg. per hundred cubic centimeters. At this time spontaneous bleeding from the gums appeared and investigation of the blood showed no alteration in coagulation factors. Thirty cc. of urine was obtained by catheter the first twenty-four hours, the specimen being quite bloody but not as much so as the original. The urinary output gradually increased, even while the blood nitrogen was rising, and fourteen days after admission amounted to 1080 cc. with a fluid intake of 1,500 cc. on the day that the blood nitrogen was the highest. This urine showed a specific gravity of 1.008 a faint trace of albumin, numerous pus cells and from 15 to 20 red cells to the high power field. At no time did the blood pressure exceed 112 systolic 70 diastolic. The ekg. remained normal at all times and no definite edema ever appeared. Her mental condition cleared rapidly after the first thirty-six hours, even in the face of a rising blood nitrogen.

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Nausea was the only symptom complained of, and the patient was unable to retain anything in her stomach for more than an hour after ingestion.

About the time the urine output became normal, the nitrogen began to fall rapidly and within two weeks was at a normal figure. All symptoms had disappeared and the patient was considered clinically well. She was seen in the office a month after discharge and was still apparently normal.

Pelvic examinations showed no reason for surgical intervention at any time and when the patient left the hospital the uterus was undergoing involution and no discharge was present.

#### COMMENT

The Bureau of Investigation of the American Medical Association states that Chichester's Diamond Brand Pills contain as the chief medicinal constituents aloes and iron sulfate and that tests for the presence of black hellebore, tansy, pennyroyal, savin and certain other reputed abortifacients resulted negatively in each case. Essentially the same results were obtained by a government chemist in connection with a suit involving interstate shipment of the pills.<sup>1</sup>

In discussing the action on the kidney of the reputed abortifacients, Sollmann<sup>2</sup> states that aloes and the pentoside allox produce tubular nephritis with increased or diminished urine containing proteins, leukocytes, casts and blood. In the case here reported, it was evidently the action of aloes that produced the renal lesion.

In response to inquiry, the Bureau of Investigation writes that the Snyder Products Company of Chicago markets a product under the name of "S P New Discovery Relief Compound for Unnatural Delayed Periods." The bureau did not know the composition of the pills, as inquiries have been too few to warrant investigation and analysis. It is assumed that they contain some combination of aloes, tansy, savin, arbor vitae, pennyroyal or cottonroot bark, as they are the substances commonly supposed to have abortifacient properties.

In discussing other supposed abortifacients, Sollmann states that arbor vitae and tansy are oils similar to turpentine but more toxic. Poisoning has occurred from their use as abortifacients, with hematuria. Six drops of these substances is said to have produced toxic effects. In no book on pharmacology is mention made of the effects of pennyroyal on the kidneys.

While tansy is popularly supposed to have abortifacient properties, no mention is made of this in any reference, but the active constituent is thugon ( $C_{10}H_{16}O$ ), as with arbor vitae, and has the same toxic effect. Cottonroot bark contains various resins but in no reference is there any mention of action on the kidneys.

It must be assumed that if Snyder's pills played any part in the toxic nephritis in this case in addition to the aloes in Chichester's pills they must contain aloes, arbor vitae, tansy or a combination of them.

899 Madison Avenue

#### DIPHTHERITIC MENINGITIS. REPORT OF A CASE AND REVIEW OF THE LITERATURE

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The extreme rarity of meningitis with true diphtheria bacilli as the etiologic agent leads us to believe that the occurrence of such a case is worthy of a report. A very careful search of all the available English literature fails to reveal any similar case. There are, however, a number of cases in the English literature in which a diphtheroid organism or an organism resembling the diphtheria bacillus in some particulars has been reported.

Miller and Lyon<sup>1</sup> reported a threadlike diphtheroid organism as a causative agent in meningitis in an infant.

Kessel and Romanoff<sup>2</sup> of New York reported a general infection with the diphtheroid bacillus complicated by a diph-

theroid meningitis. A blood stream infection was present in their case.

Dr. Dick<sup>3</sup> of Chicago reported a case of meningitis due to a diphtheroid organism which showed no polar bodies and was not pathogenic to guinea-pigs except on intravenous inoculation.

One case of diphtheritic meningitis was reported by Moritz<sup>4</sup> in the French literature, in which he found both the meningococcus and the Klebs-Loeffler bacillus in the spinal fluid. He gives no record of a virulence test being made on the Klebs-Loeffler bacillus. A number of men have reported on the changes in the spinal fluid of diphtheritic paralysis and all agree that the organisms are never found in the spinal fluid in this condition.

In the German literature, four cases of meningitis with the Klebs-Loeffler organism as the proved etiologic agent were found. The first of these was described by von Stirling and reported by Pockels<sup>5</sup> in a child suffering with a mastoid infection. A brain abscess developed from which a pure culture of Klebs-Loeffler bacilli was obtained.

Pockels<sup>5</sup> reported a case in which a 7½ year old child showed symptoms of meningitis. On culture of the spinal fluid, both the streptococcus and the diphtheria bacillus were obtained.

Fuchs<sup>6</sup> reported a case in a woman, aged 38, in which a culture of the spinal fluid showed a diphtheria bacillus. The patient recovered following the use of diphtheria antitoxin.

Glaser<sup>7</sup> in 1917 reported a case of true diphtheritic meningitis in a soldier in whom the bacteriologic examination revealed Klebs-Loeffler bacilli and the patient recovered following the use of antitoxin.

Reiche<sup>8</sup> in 1914 reported a number of cases of meningitis complicating diphtheria; however, in all his cases the meningitis was due to some organism other than the diphtheria bacillus.

The following case of meningitis due to the Klebs-Loeffler bacillus occurred in our hospital recently.

#### REPORT OF CASE

A white boy aged 2½ years was admitted to St. Joseph's Mercy Hospital, Dec. 5, 1934. The parents stated at the time of admission that the patient had been sick for approximately ten days prior to entering the hospital. He was seen by a physician in a neighboring community, and a diagnosis of bilateral otitis media was made and paracentesis was done. The patient improved following this procedure. The ears, however, stopped draining and were reopened after two or three days by the same physician, at which time he noted signs of a meningitis and urged hospitalization. This was refused by the parents, and the patient was not under medical supervision for approximately three days, at which time a second physician was called and the patient was referred to the hospital. On admission an examination of the ears showed a small amount of a dried exudate in one auditory canal, with evidence of previous paracentesis in both drums but no evidence of bulging or involvement of the drum at the time of examination. Roentgen examination of the mastoids at this time showed no destruction of mastoid cells. A spinal puncture was done. The fluid was cloudy and under increased pressure. The globulin was increased. There were approximately 20,000 cells per cubic millimeter and smears showed many organisms that morphologically appeared to be Klebs-Loeffler bacilli. Examination of the throat showed it to be slightly red, but there was no evidence of a membrane in the nose, pharynx or larynx. However, a culture of the throat was positive for Klebs-Loeffler bacilli. The patient received 5,000 units of diphtheria antitoxin intramuscularly and the following day 8,000 units of antitoxin was administered through a cisternal puncture. Examination of the spinal fluid obtained at this time again showed the same organism. A third injection of 10,000 units, intramuscularly, was given. Repeated spinal punctures were

3. Dick G. F. Case of Cerebrospinal Meningitis Due to Diphtheroid Bacillus. J. A. M. A. 74: 84 (Jan. 10) 1920.

4. Moritz D. Meningitis from Diphtheria Bacilli. Case Nourrisson 18: 310-313 (Sept.) 1930.

5. Pockels W. Growth of Bacilli in Cerebrospinal Fluid of Diphtheria Patients. Monatschr. f. Kinderh. 49: 394-396 1931.

6. Fuchs F. E. Meningeal Diphtheria. Meningitis Following Radical Nasal Operation. Monatschr. f. Kinderh. 67: 310-313 (March) 1933.

7. Glaser W. Diphtheriebazillen als Meningitisserreger. Munchen med. Wchnschr. 64: 856 1917.

8. Reiche F. Meningitis bei Diphtherie. Ztschr. f. Kinderh. 11: 452-459 1914.

1. Notice of Judgment 15052 Southern District of New York issued in December 1927.

2. Sollmann Torald. Manual of Pharmacology Philadelphia W. B. Saunders Company 1928.

1. Miller M. K. and Lyon M. W. Meningitis Due to a Threadlike Diphtheroid Organism in an Infant. Am. J. M. Sc. 162: 893 (Oct.) 1921.

2. Kessel Leo and Romanoff Alfred. General Infection with Diphtheroid Bacillus Complicated by Diphtheroid Meningitis. J. A. M. A. 94: 1647-1648 (May 24) 1930.

done until the fluid became so thick that it would not run from a No 18 needle. Following this, cisternal punctures were done for relief of pressure.

The physical examination, other than that just given, was negative except for a rapid pulse, a few moist rales in the chest, positive Kernig and Babinski reflexes, and a stiff neck.

The temperature remained high and the patient failed gradually and died December 14, after being in the hospital nine days.

Laboratory work, other than on the spinal fluid, showed a few erythrocytes and leukocytes in the urine and 1 plus albumin. The red blood cell count was 3,680,000, the white blood cell count was 34,400, the hemoglobin 70 per cent, polymorphonuclear leukocytes 75 per cent, lymphocytes 20 per cent, monocytes 3 per cent, myelocytes 2 per cent and a shift to the left (Schilling) of 25 per cent.

The organism grew in pure culture. A virulence test was run and the organism found to be a virulent diphtheria bacillus.

On the day following admission of the patient to the hospital a younger child in the family was seen with a temperature of 104 F and a positive smear and culture of the throat, although no membrane was present in this child. He received antitoxin and was referred to the care of his home physician, who reported that the next day the temperature returned to normal and remained normal.

Autopsy was negative except for a diffuse purulent meningitis covering the entire brain and the spinal cord, and a bilateral otitis media with mastoiditis. There was little destruction of bone present. There was no evidence of myocardial damage. Microscopic sections of the brain showed only superficial involvement, with relatively little penetration of the infectious process.

#### SUMMARY

In a case of fatal meningitis with Klebs-Loeffler bacilli as the causative agent guinea-pig inoculation showed the organisms to be a virulent strain.

No similar cases could be found in the English literature.

The German literature contained four cases.

The case reported developed following otitis media and mastoiditis.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

PAUL NICHOLAS LEECH, Secretary

#### LACTOBACILLUS ACIDOPHILUS MILK (TOWT) OMITTED FROM N N R

Lactobacillus Acidophilus Milk (Towt), prepared by Towt-Nolan Laboratory, was accepted by the Council in 1927 as meeting the conditions prescribed for similar lactic acid producing preparations.

At the expiration of the period for which it was accepted the Council examined the data submitted by the firm as evidence of its eligibility for continued inclusion. A number of objections to labels, circulars and miscellaneous advertising matter were reported. The firm was informed of these objections and further informed that the product would be reaccepted if the objections were met. A reply was received by the Council in which the firm expressed its intention to cooperate at all times but asked that the Council grant a period of six months in which to use up a supply of material that was on hand. The Council acceded to the firm's request for a six months period. When this period had expired the firm was asked to submit the necessary revised material. No reply was received to this request and two reminders were likewise ignored. Since the firm has not lived up to its agreement to cooperate, the Council has no alternative but to omit the product from New and Non-official Remedies.

The Council therefore voted to omit Lactobacillus Acidophilus Milk (Towt) from New and Nonofficial Remedies because the manufacturer failed to submit evidence of its continued acceptability.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**BOTULINUS ANTITOXIN**—An antitoxic serum prepared by immunizing animals against two or more strains of the toxin of *Clostridium botulinum*.

**Actions and Uses**—For prophylaxis and treatment of botulism. Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.

**Botulinus Antitoxin (Human) Jensen Salsbery**—This antitoxin is prepared by the hyperimmunization of horses and cattle by continued and progressively increasing doses of botulinus toxin. It is prepared against two types of the toxin, namely A and B. Each type is prepared in separate animals and the commercial product is prepared by mixing given quantities of each type so that each marketed package will contain 2,000 units each of type A and type B antitoxin, the unit of each being that established and distributed by the National Institute of Health. The animals are bled at specified intervals and the same technique is used in preparing the final product as is required by the National Institute of Health in the preparation of the antitoxins for which standards have been established. The product is not concentrated but consists of the whole serum as it is derived from the defibrinated blood by process of centrifugation and Berkefeld filtration. The preservative consists of a mixture of equal parts of refined tricresol and ether so that the final volume is 0.8 per cent of the combined preservative. It is marketed in packages of one vial containing 2,000 units each of type A and type B botulinus antitoxin.

**Dosage**—Prophylactic subcutaneous injections of at least 2,000 units of bivalent antitoxin curative intravenous injection of at least 10,000 units of the bivalent antitoxin repeated as the nature of the case indicates.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



FRANKLIN C. BING, Secretary

#### HEINZ BRAND STRAINED MIXED GREENS

**Manufacturer**—H. J. Heinz Company, Pittsburgh

**Description**—Canned mixture of strained kale, green lettuce and green asparagus retaining in high degree the natural vitamins and minerals.

**Manufacture**—Fresh kale, green lettuce and green asparagus are trimmed and washed. Equal quantities are mixed, cooked and strained in the absence of air (coarse fibrous material is removed), vacuumized to remove occluded air and filled into enamel lined cans, which are sealed under vacuum and processed.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	92.7
Total solids	7.3
Ash	1.3
Fat (ether extract)	0.2
Protein (N x 6.25)	2.3
Reducing sugar as invert sugar	0.8
Total sugar as invert sugar	1.1
Crude fiber	1.2
Carbohydrates other than crude fiber (by difference)	2.3
Calcium (Ca)	0.17
Phosphorus (P)	0.05
Iron (Fe)	0.0014
Copper (Cu)	0.0003

**Calories**—0.2 per gram, 6 per ounce

**Vitamins**—Vitamin biologic assay shows 380 Sherman units (530 international units) of vitamin A per ounce, 13 Sherman units of vitamin B per ounce, 14 Sherman-Bourquin units of vitamin G per ounce.

**Chemical** analysis shows 123 international units of vitamin C per ounce.

**Claims of Manufacturer**—For table use, but especially intended for infants, children and convalescents.

- 1 FAULTLESS BRAND TOMATO JUICE
- 2 JACK SPRAT BRAND TOMATO JUICE
- 3 MARSHALL BRAND TOMATO JUICE
- 4 UNCLE WILLIAM BRAND TOMATO JUICE

*Distributors*—2 Jack Sprat Foods, Inc., Marshalltown, Iowa  
3 Marshall Food Products Company, Marshalltown, Iowa 1  
and 4 Marshall Canning Company, Marshalltown, Iowa

*Manufacturer*—Marshall Canning Company, Marshalltown, Iowa

*Description*—Tomato juice seasoned with salt retaining in high degree the natural mineral and vitamin values

*Manufacture*—Specially selected ripe tomatoes, free from cracks or blemishes, are thoroughly cleaned, mechanically broken, and heated to 77 C. The juice is mechanically separated from cores, stems, skins and seeds in a steam atmosphere, slightly seasoned with salt, heated under vacuum, filled into cans, sealed and heat processed

<i>Analysis</i> (submitted by manufacturer)	per cent
Moisture	94.1
Total solids	5.9
Ash	1.0
Sodium chloride	0.7
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.9
Crude fiber	0.2
Reducing sugars as invert sugar	3.0
Carbohydrates other than crude fiber (by difference)	3.0
Acidity as citric acid	0.4

*Calories*—0.2 per gram 6 per ounce

*Vitamins*—The process avoids admixture of air with juice at all stages and consequently is considered efficient to retain vitamin C in high degree

*Claims of Manufacturer*—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. For infant feeding and general table use

#### LOEFLUND'S MALT SOUP STOCK

*Distributor*—Schieffelin & Company, New York

*Manufacturer*—Ed Loefflund & Company, Grunbach near Stuttgart, Germany

*Description*—Concentrated malt extract with added potassium carbonate and bicarbonate

*Manufacture*—Barley malt mash is maintained at an appropriate temperature until the enzymes have converted the starch to a definite ratio of maltose and dextrans, the solution is filtered, the filtrate admixed with 11 per cent potassium carbonate and bicarbonate (1.08), condensed under reduced pressure to the desired concentration, and canned

<i>Analysis</i> (submitted by manufacturer)	per cent
Moisture	23.0
Total solids	77.0
Ash	2.0
Fat (ether extract)	0.0
Protein (N $\times$ 6.25)	4.5
Reducing sugars as maltose	57.58
Dextrans (by difference)	12.13

Only small amount of diastase is retained

*Calories*—3.0 per gram 85 per ounce

*Claims of Manufacturer*—For use in infant feeding under the direction of a physician

- 1 DOLE BRAND HAWAIIAN PINEAPPLE ROYAL SPEARS
- 2 DOLE BRAND HAWAIIAN PINEAPPLE GEMS

*Manufacturer*—Hawaiian Pineapple Company, San Francisco

*Description*—1 Canned, peeled and cored Hawaiian pineapple cut into longitudinal sections and packed in pineapple juice with added cane sugar

2 Canned peeled and cored Hawaiian pineapple, cut in thick segments and packed in pineapple juice with added cane sugar

*Manufacture*—1 Same as Dole Hawaiian pineapple products (THE JOURNAL April 8 1933 p 1106) except that the fruit is cut into longitudinal sections ("spears" or "fingers")

2 Same as Dole Hawaiian pineapple products (THE JOURNAL, April 8, 1933, p 1106) except that the fruit is cut into 1 to 1½ inch slices, which are then divided into segments

<i>Analysis</i> (submitted by manufacturer) —	Spears per cent	Gems per cent
Moisture	75.9	73.9
Total solids	24.1	26.1
Ash	0.4	0.4
Fat (ether extract)	0.01	0.01
Protein (N $\times$ 6.25)	0.4	0.4
Reducing sugars as invert sugar	12.4	13.5
Sucrose	8.7	9.5
Crude fiber	0.3	0.3
Carbohydrates other than crude fiber (by difference)	23.0	25.0
Titrateable acidity as citric acid	0.7	0.6

*Calories*—0.9 per gram 26 per ounce

*Vitamins*—Biologic assay shows canned pineapple to contain vitamin A and to be a good source of vitamins B and C. Practically equivalent to the fresh fruit in A and B slightly inferior in C

*Claims of Manufacturer*—The canned product is practically equivalent to the fresh fruit in nutritional values (vitamin C slightly reduced). Fancy quality

#### SUNSHINE BRAND EVAPORATED MILK

*Manufacturer*—Litchfield Creamery Company, Litchfield, Ill

*Description*—Unsweetened sterilized, evaporated milk

*Manufacture*—Milk received from company inspected farms is tested on arrival at the plant for acidity, sediment and odor. The milk is filtered, preheated to 100 C, evaporated, homogenized, cooled to from 2 to 4 C, automatically canned and sealed, processed at 117 C for from eighteen to twenty minutes, and cooled

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	73.9
Total solids	26.1
Ash	1.5
Fat (ether extract)	7.8
Protein (N $\times$ 6.38)	7.5
Lactose (by difference)	9.2

*Calories*—1.4 per gram 40 per ounce

*Claims of Manufacturer*—See announcement on the advertising of the Evaporated Milk Association (THE JOURNAL, Dec 19, 1931, p 1890)

#### CELLU BRAND LITTLE KERNEL CORN WATER PACKED

*Distributor*—Chicago Dietetic Supply House Inc, Chicago

*Packer*—L. H. Schlecht, Rossville, Ill

*Description*—Canned corn (cream style) packed in water

*Manufacture*—Selected ears of corn of the proper degree of maturity are trimmed, brushed to remove silk and washed. The kernels are cut from the cob, mechanically treated for removal of bits of cob and silk, mixed with water and preheated to disrupt starch granules and develop creamy consistency. The corn is then filled into cans, sealed and processed

<i>Analysis</i> (submitted by distributor) —	per cent
Moisture	84.9
Total solids	15.1
Ash	0.5
Fat (ether extract)	0.7
Protein (N $\times$ 6.25)	1.8
Crude fiber	0.5
Starch (diastase method)	9.2
Carbohydrates other than crude fiber (by difference)	11.6

*Calories*—0.6 per gram 17 per ounce

*Claims of Manufacturer*—Choice quality corn packed without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition

#### ADVERTISING LEAFLET "MELLOW MILK, HOMOGENIZED"

Illustrated booklet prepared by Esmond Gundlach & Co., advertising agency, Cincinnati, for distribution by producers of accepted homogenized milks explanatory of the physical changes and more rapid digestibility of milk resulting from homogenization

# REPORTS OF OFFICERS

**NOTE**—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion—Ed

## REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association

The following report of the Secretary is respectfully submitted

### MEMBERSHIP

Since the annual session of the Association is being held one month earlier than is usual, the report pertaining to membership and Fellowship is based on enrollment on March 1, 1936 rather than on April 1

The number of members enrolled on March 1 1936, was 101,754 This represents an increase of 2,218 over the number of members reported as of April 1 1935 at the Atlantic City session

### FELLOWSHIP

The number of Fellows of the Association as shown by the official roster, on March 1 1936, was 62,997 an increase of 1,591 over the number reported as of April 1 1935

An accompanying table indicates the number of counties in each state and territory the number of component societies as shown by the records in the Secretary's office the number of members enrolled at the time the count was made for the purposes of this table and the number of Fellows including Honorary Fellows and commissioned officers of government medical services

### ORGANIZATIONAL ACTIVITIES

From information secured through correspondence with secretaries and other officers of constituent associations and component societies and from information otherwise received it is clearly apparent that constant progress is being made in most of the states in strengthening the machinery of medical organization and in extending the influence of state and county medical societies In several states greater care is being exercised in the selection and admission of members Much closer contact is being maintained with organized groups among the lay public that have concerned themselves with medical and public health affairs It seems quite apparent that the officers and members of many societies are carefully studying conditions existing within their own jurisdictions with a view to enhancing the service that can be rendered to their own members and to the public Even so there is still room for improvement in many places, because there are still too many county medical societies that are comparatively inactive and some that are practically dormant

### ANNUAL CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

The Annual Conference of Secretaries of Constituent State Medical Associations was held in Chicago in November 1935 with a fine attendance It is gratifying to note that the number of officers of state medical associations other than secretaries and editors who attend the Conference is increasing with each succeeding year, and it is heartening indeed to observe the fine spirit of mutual helpfulness exhibited by the members of the Conference The discussions that take place at these conferences are free and frank and are characterized by friendly criticisms and suggestions which are intended to be constructive and helpful

### FIELD WORK

The elective officers of the American Medical Association and individual members of the Board of Trustees and of other official bodies, the Editor of THE JOURNAL the Secretary and General Manager, and directing heads of the Association's councils, bureaus and departments have visited many medical societies in practically all parts of the United States during the

last year Representatives of the Association have appeared before a greater number of lay audiences than ever before The Editor of THE JOURNAL the Director of the Bureau of Health and Public Instruction and the Director of the Bureau of Medical Economics have appeared as speakers on a number

### Organization of Constituent State Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations					
			Number of Counties Not in State		No of Physicians in State	Number of State Associations	Number of Fellows in State	
			Organized	13th Ed				
			1919	1936	Directory	1935	1936	
Alabama	67	67			2,129	1,451	1,457	17
Arizona	14	12	1	1	468	249	277	206
Arkansas	11	63	3	9	1,590	1,062	1,069	373
California	58	9	12	10	10,490	2,291	382	1,439
Colorado	6	28	2		1,874	1,110	1,132	612
Connecticut	5	8			2,312	1,116	1,160	968
Delaware					301	194	200	116
Dist. of Columbia					1,831	109	737	37
Florida	67	32	20	2	1,840	1,010	1,081	591
Georgia	161	96	48	46	2,311	1,641	1,689	642
Idaho	44	10			388	214	214	138
Illinois	102	32	6	7	11,504	6,767	7,008	4,416
Indiana	92	82	2	2	4,040	2,828	2,854	1,608
Iowa	99	97			1,441	2,919	2,993	1,316
Kansas	108	65	0	28	215	1,664	1,417	814
Kentucky	120	117			2,808	1,710	1,708	732
Louisiana	64	40	19	38	2,127	1,234	1,266	682
Maine	16	10	1	1	984	700	698	75
Maryland	2	22	1	1	2,617	1,328	1,368	819
Massachusetts	14	18			7,014	4,737	4,827	2,101
Michigan	51	4	4	1	5,678	3,468	661	2,170
Minnesota	87	14	2	1	1,174	2,239	2,302	1,429
Mississippi	82	24	1	1	1,525	1,220	1,200	310
Missouri	11	54	8	9	1,700	2,211	1,414	2,607
Montana	36	15	20	20	450	340	240	205
Nebraska	91	41	20	20	1,772	1,161	1,091	674
Nevada	17		14	12	111	100	104	64
New Hampshire	10	10			602	479	490	211
New Jersey	21	21			1,911	2,911	3,016	2,165
New Mexico	1	12	19	19	191	215	209	114
New York	62	61	1	1	22,812	17,368	14,137	9,347
North Carolina	100	8	2		2,460	1,096	1,167	728
North Dakota	1	10	10		111	7	100	206
Ohio	85	86	2		8,769	12,288	13,344	7,461
Oklahoma	77	11	11	7	2,401	1,112	1,494	724
Oregon	6	23			1,408	612	742	442
Pennsylvania	67	60	6	6	12,608	9,122	8,411	5,439
Rhode Island	1	6	1	1	907	494	501	361
South Carolina	46				1,329	921	99	46
South Dakota	69	12	11	11	185	252	32	197
Tennessee	11	19	16	21	2,970	1,400	1,688	71
Texas	244	12	12	14	6,619	9,900	4,024	1,901
Utah	29	9	4		21	51	398	223
Vermont	14	10	3		317	688	714	184
Virginia	100	11	10		2,659	1,740	1,722	891
Washington	1	23	14	14	2,000	1,181	1,067	786
West Virginia	1	29		5	1,779	1,122	1,220	616
Wisconsin	71	2	1	1	702	2,182	2,911	1,590
Wyoming	24	12	11	10	237	149	141	92
Alaska					5	10	20	14
Hawaii		4	1	1	2	215	262	117
Petroleum Canal Zone						194	105	100
Philippine Islands (Provinces)	1	12	45	44	2,147	717	446	8
Porto Rico (Dist.)	1	7			407	326	26	12
Foreign								192
Total	142	2,061	417	411	164,114	99,536	101,754	60,374
Commissioned medical officers								2,623
								67,997

of radio programs and have thus reached audiences that are said to have included millions of persons

A number of constituent state medical associations have largely increased their field activities and have inaugurated splendid educational programs In a few states the presidents and secretaries of the state medical associations have visited

every component county medical society within their respective states. Reports received from official sources indicate that the councils of the constituent associations, or the boards of trustees, which in some states correspond to the councils, are giving more zealous attention to their official duties than ever before.

#### RESOLUTIONS FROM CALIFORNIA MEDICAL ASSOCIATION

The following resolutions were transmitted by the secretary of the California Medical Association with the request that they be included in the Handbook of the House of Delegates and printed in the AMERICAN MEDICAL ASSOCIATION BULLETIN.

Under instructions of the Council of the California Medical Association, the California Medical Association delegates to the 1936 Kansas City Session are directed to introduce the following resolution in the American Medical Association House of Delegates:

WHEREAS Certain organized lay groups in this country are endeavoring to arrange for the provision of diagnostic medical service along with and as part of hospital services and

WHEREAS The provision of such diagnostic medical service will inevitably foster fundamental changes in the practice of medicine and

WHEREAS Such changes in the practice of medicine may well result in deterioration of our present medical standards and especially in deterioration in the quality of medical care furnished to hospital patients now therefore be it

Resolved That it is the official policy of the House of Delegates of the American Medical Association that it disapproves of the division of any branch of medicine into technical and professional portions and be it further

Resolved That copies of this resolution shall be brought to the attention of the American Hospital Association and its affiliated groups to the end that existing arrangements permitting division in medical practice be terminated as speedily as possible

#### MEMBERSHIP JURISDICTION

It is important for various reasons that the jurisdiction of component societies and constituent associations with respect to membership should be clearly defined and definitely maintained. In most if not all states, provision is made whereby physicians residing in one county may become members of the medical society of an adjoining county provided the society of the county in which they reside and practice will waive jurisdiction. This is undoubtedly a wise provision, designed to serve the convenience of a comparatively large number of physicians who reside near county lines, and no doubt tends to bring into membership qualified physicians who otherwise might withhold their affiliation.

There are many physicians located near state lines, and there seems to be an increasing tendency for such physicians to maintain membership in the component county medical societies of states other than those in which they reside and practice. There are reasons why it is just as important for the jurisdiction of a constituent state medical association over physicians within its own territory to be as definitely fixed as the jurisdiction of the component county medical society. It is therefore respectfully suggested that the House of Delegates at this session consider the advisability of formulating suggestions, to be offered to the constituent associations, to the effect that physicians residing near state lines may be given the privilege of affiliating themselves with the component societies of immediately adjacent counties in other states. Such an arrangement would involve definite agreements between the constituent state medical associations of adjoining states.

The Secretary again makes most grateful acknowledgment of the many considerate kindnesses that have been shown him by the members and officers of official bodies of the Association by the officers of constituent state medical associations and component county medical societies, by members of this House of Delegates, and by a large number of the individual members of the Association in all parts of the country.

Respectfully submitted OLIN WEST, Secretary

#### REPORT OF THE BOARD OF TRUSTEES

*To the Members of the House of Delegates of the American Medical Association*

During each of the last ten years there has been a very constant increase in the work that the American Medical Association has been called on to do and a very earnest effort has been made to expand the needed facilities within the bounds of reason and safety. Not only has the amount of work grown

greater year after year, but the scope of the Association's activities has been greatly extended. Whenever any new facility has been provided, new demands have been created, until in 1935 an entirely new mark measuring the amount of work done in the Association's offices was established.

It became necessary during the year to increase the working personnel until, at the time this report was prepared, there were more than 550 persons in the Association's employ.

#### The Journal of the American Medical Association

The increasing circulation of THE JOURNAL, the innumerable references to its columns in medical and lay periodicals and in newspapers throughout the world, and the great number of letters received from subscribers testify to the almost universal appreciation of this publication. Several series of special articles, notably those on glandular therapy and on the therapy of the Cook County Hospital, have attracted special attention. Arrangements are being made to republish the first series in several foreign languages. The department of questions and answers has gradually assumed increasing significance as a source of reference for the general practitioner. Many comments indicate that its practical value is generally realized. THE JOURNAL continues to serve as the voice of the organized medical profession of the United States, reflecting not only scientific advancement but also the interest of the profession in medical education and medical economics.

Tables 1 and 2 indicate the approximate count of Fellows and subscribers carried on the mailing list of THE JOURNAL, showing the gain or loss of Fellows and subscribers and the number of physicians receiving THE JOURNAL in each state.

The average number of copies of THE JOURNAL printed weekly during the year 1935 was 88,843. The net paid circulation Dec 31, 1935, was 89,179, an increase of 4,344 over the net paid circulation on a similar date in the previous year.

#### Summary

*The Journal of the American Medical Association has been maintained at the high standard of recent years and is developing new features of practical value pointed toward the interest of the general practitioner.*

*The paid circulation, Dec 31, 1935, was larger by 4,344 than on the same date in 1934.*

#### Special Journals

During 1935 the special periodicals were maintained at the usual scientific standard which they have held since their inception. The Association now publishes special periodicals in the field of internal medicine, diseases of children, otolaryngology, ophthalmology, pathology, neurology and psychiatry, dermatology and syphilology, and surgery. These publications are issued primarily with the view to advancing the sciences with which they are concerned. They have been everywhere recognized as equal to the very best in their fields published anywhere else in the world.

The special journals of the American Medical Association are not published in the interests of any single specialistic organization but are planned primarily with a view to the promotion of the science rather than of the individuals or the groups interested in that science. Recently other periodicals have been issued by commercial publishing organizations which have become the special organs of certain groups organized within some of the specialties. This has served to diminish to some extent the circulation of our own publications, since those who join the special organizations are compelled to subscribe to the privately published periodical as a part of their membership. Members of the Association who devote themselves primarily to specialties should realize the independent nature of the publications issued by the Association and should realize also that the continuance of such publications depends on the support given to them by those who practice these specialties. The special periodicals are not published with any idea of commercial gain, in fact they have regularly shown a loss as a group since the time when they were first established.

During the year, requests have been received by the Board of Trustees for the establishment of additional periodicals in special fields. The decision as to whether or not the Associa-

tion can still further extend its efforts in this direction will naturally depend on the support which develops from the medical profession as an indication of the extent to which the periodicals are desired

With the beginning of 1935 the ARCHIVES OF INTERNAL MEDICINE established the policy of publishing in each issue a

TABLE 1—Approximate Count of Fellows and Subscribers on The Journal Mailing List by States, Dec 31, 1935, Also Gain or Loss in Each State

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	457	221	708	60	
Arizona	184	127	307	42	
Arkansas	323	167	490	1	
California	3 318	2 278	5 596	294	
Colorado	602	274	876	64	
Connecticut	944	558	1 502	60	
Delaware	111	71	186	13	
District of Columbia	547	531	1 078	78	
Florida	390	390	920	36	
Georgia	579	345	924	78	
Idaho	128	110	238	47	
Illinois	4 079	2 791	6 894	245	
Indiana	1 477	346	2 033	32	
Iowa	1 175	414	1 592	61	
Kansas	719	300	1 074	58	
Kentucky	612	33	1 007	54	
Louisiana	309	294	893	6	
Maine	54	147	201	4	
Maryland	770	578	1 348	121	
Massachusetts	2 764	1 376	4 090	84	
Michigan	2 032	1 160	3 201	212	
Minnesota	1 253	500	1 836	97	
Mississippi	269	112	381	10	
Missouri	1 391	800	2 450	63	
Montana	171	104	275	22	
Nebraska	600	311	920	27	
Nevada	60	31	91	7	
New Hampshire	245	90	335	4	
New Jersey	2 093	1 381	3 474	184	
New Mexico	143	76	219	21	
New York	8 624	5 485	14 109	666	
North Carolina	712	408	1 120	100	
North Dakota	213	79	292	7	
Ohio	3 260	1 005	4 774	206	
Oklahoma	670	250	910	67	
Oregon	381	240	664	3	
Pennsylvania	5 360	2 306	7 666	400	
Rhode Island	340	192	537	9	
South Carolina	310	194	504	24	
South Dakota	181	120	301	1	
Tennessee	642	401	1 049	87	
Texas	1 640	800	2 490	108	
Utah	130	101	294	21	
Vermont	177	116	293	7	
Virginia	829	392	1 221	68	
Washington	712	348	1 060	48	
West Virginia	577	206	811	43	
Wisconsin	1 300	594	1 903	80	
Wyoming	87	46	133	1	
U S Army		140	170		
U S Navy		217	217		
Alaska	12	14	26	6	
Canada	15	728	743	14	
Cuba	4	67	71	26	
Hawaii	96	66	162	12	
Mexico	9	77	86	2	
Panama	14	20	39	1	
Philippine Islands	37	101	188	32	
Puerto Rico	6	42	100	4	
Virgin Islands	1	6	7	2	
Foreign	114	2 312	2 476	247	

competent review of the advancement of knowledge in some special field of internal medicine. These reviews have been received with enthusiasm and commendation throughout the world. In fact, the project has been so successful that appeals are already being made for the publication of such material in independent book form. Encouraged by this reception the editors of the ARCHIVES OF INTERNAL MEDICINE have made plans to continue the reviews as a permanent feature of the ARCHIVES.

The circulation of the special scientific journals has been somewhat unfavorably affected by the economic situation, although the total circulation of this group of publications was increased by nearly 1,000 in 1935.

Only two of the special journals the ARCHIVES OF OTOLARYNGOLOGY and the ARCHIVES OF OPHTHALMOLOGY produced incomes in excess of the cost of publication. The cost of publication of the entire group in excess of income received was \$28,004.70.

### Summary

The special journals have been continued on their usual high plane.

The Board of Trustees views with some alarm the establishment of commercially published periodicals, in some special fields, which become the official organs of special organizations involving a compulsory subscription and thereby detracting from the subscribers and incomes of our own periodicals, which are not published in the interests of any special groups.

The Board of Trustees is being importuned for the publication of additional special periodicals, and the matter is being given consideration.

There was a small gain in the total circulation of the special journals. The loss sustained in 1935 was \$28,004.70.

### Hygeia

Increasing circulation and innumerable quotations from HYGEIA in newspapers and in other periodicals testify to the manner in which HYGEIA is reaching a vast audience. Hardly a day passes in which letters are not received from magazines devoted to digests of important literature, magazines in the field of education and periodicals devoted to industry and labor,

TABLE 2—Physicians Receiving The Journal\*

State	Number Receiving Journal	Physicians in State A M A Directory	Approximate Percentage Receiving Journal
Alabama	708	2 129	33
Arizona	307	468	65
Arkansas	490	1 890	26
California	5 596	10 490	53
Colorado	876	1 874	47
Connecticut	1 502	2 312	65
Delaware	186	301	62
District of Columbia	1 078	1 831	59
Florida	920	1 840	50
Georgia	924	2 811	33
Idaho	238	388	61
Illinois	6 894	11 504	60
Indiana	2 033	4 049	50
Iowa	1 592	3 141	51
Kansas	1 074	2 133	50
Kentucky	1 007	2 808	36
Louisiana	893	2 127	42
Maine	201	984	20
Maryland	1 348	2 617	51
Massachusetts	4 090	7 014	58
Michigan	3 201	5 678	56
Minnesota	1 836	3 174	58
Mississippi	381	1 020	37
Missouri	2 450	3 070	44
Montana	275	480	57
Nebraska	920	1 772	52
Nevada	91	139	65
New Hampshire	335	602	56
New Jersey	3 474	4 910	71
New Mexico	219	397	55
New York	14 109	22 612	62
North Carolina	1 120	2 460	46
North Dakota	292	511	57
Ohio	4 774	8 760	55
Oklahoma	910	2 409	38
Oregon	664	1 008	66
Pennsylvania	7 666	12 008	64
Rhode Island	537	907	59
South Carolina	504	1 370	36
South Dakota	301	533	57
Tennessee	1 049	2 970	35
Texas	2 490	6 629	37
Utah	294	571	51
Vermont	297	517	57
Virginia	1 221	2 600	46
Washington	1 060	2 000	53
West Virginia	811	1 779	46
Wisconsin	1 903	3 492	55
Wyoming	133	237	56

\* This table gives the number of physicians (based on the Thirteenth Edition of the American Medical Directory) in the United States the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army and Navy are not included.

requesting the right to abstract or reprint articles from HYGEIA. Its dramatization of health is being regularly used in many schools. The illustrations have been kept at a high standard and the content appeals to many different interests in the health field. The HYGEIA editorials have been designed to give to the public the point of view of the medical profes-



sion in relation to sociological, economic and scientific subjects. Commendations of the American Medical Association for this venture come from many sources, including individual subscribers, laymen, dentists, nurses, teachers, health officers and practicing physicians.

Even though the total circulation was well maintained during the year and was considerably increased in the last month or two, the income received was less than the cost of publication by the sum of \$31,311.29. The loss sustained was largely due to the cost of promoting circulation and to expenditures made for its improvement. The advertising income in 1935 was only slightly in excess of the income from the same source in 1934. The total number of subscriptions at the end of the year was 86,745.

#### Summary

*The numerous commendations and the increasing use of Hygeia in schools and as a source of public health information for many publications indicate that it is serving well the purpose for which it was established by the House of Delegates.*

*The cost of publication in 1935 was considerably larger than income received.*

#### The Library

The library continues to render a maximum of service to the medical profession directly and through its contributions to the publication department of the Association.

During 1935, 9,854 periodicals were lent to physicians on individual requests, 3,113 package libraries containing reprints and periodicals were sent to physicians, the majority of the requests coming from Illinois, New York and Pennsylvania, three states in which medical libraries are easily available to the membership. Thus Illinois made 375 requests, notwithstanding that it has seventeen medical libraries. New York sent 218 requests, notwithstanding its thirty-four medical libraries, and Pennsylvania sent 195 requests notwithstanding its twenty-four medical libraries. Next in order came Indiana with 156 requests but with only three libraries, Ohio 141 requests with eleven libraries, and Michigan 133 requests with only eight libraries. These figures should indicate the necessity of maintaining the package library service on the high plane which it has occupied from the beginning.

In addition to these services, the library answered 4,500 bibliographic questions. As usual the indexes to THE JOURNAL and to some of the books published by the Association were made in the Library. Although the library of the Association is planned primarily for service to the membership throughout the country, service was given directly to approximately 1,000 visitors during the year.

The QUARTERLY CUMULATIVE INDEX MEDICUS has now reached a point at which it is recognized throughout the world as the most significant publication in the medical bibliographic field. Its importance increases as other indexes, such as the Index Catalogue of the Library of the Surgeon General's Office, have become less available.

The time lag between the receipt of the foreign literature and its inclusion in the INDEX has been cut down to four weeks.

During the year the employees' library showed a circulation of 5,737 books with an average daily circulation of twenty-four. 135 of the 550 employees of the Association availing themselves of this service.

#### Summary

*The library has extended the scope of the periodical loans and the package library service, has maintained the Quarterly Cumulative Index Medicus at a high standard of efficiency and has rendered increasing service to the headquarters office in the preparation of indexes and of reference work for the various departments.*

#### Quarterly Cumulative Index Medicus

The circulation of the QUARTERLY CUMULATIVE INDEX MEDICUS, one of the most important of all publications in the field of medicine and one of the greatest contributions made by the American Medical Association for the promotion of medical science, is largely confined to libraries. A copy of this publi-

cation in a library may be used by many individuals. The number of personal subscriptions is small. Of the total circulation of the INDEX MEDICUS, 616 copies go to foreign countries.

The cost of publication of the QUARTERLY CUMULATIVE INDEX MEDICUS in 1935 amounted to the sum of \$44,439.84 over the amount of income received.

#### American Medical Directory

The Fourteenth Edition of the American Medical Directory at the time this report is written is being made ready for the press. It has been necessary to make a large number of changes in addresses as well as in the items of information concerning medical societies and institutions.

The total number of copies of the Thirteenth Edition of the Directory sold up to Dec. 31, 1935, was 8,280.

It is too early to hazard any prediction as to the probable cost of the Fourteenth Edition of the American Medical Directory.

#### Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau represents thirty-two of the thirty-four journals of constituent state medical associations.

Commissions earned in 1935 amounted to \$26,224.26, as compared with \$21,247.06 in 1934. The sum of \$9,000 was remitted to the state journals concerned, \$3,000 more than was distributed to them in 1934. These remittances were distributed to the state journals in proportion to the total amount of advertising secured for each of them.

#### Summary

*Thirty-two of the thirty-four journals of constituent state medical associations are represented in the Cooperative Medical Advertising Bureau. From the earnings of the Bureau the sum of \$9,000 was distributed among these journals in amounts proportionate to the total amount of advertising secured for each journal.*

#### Building and Equipment

For several years the need for a larger and better arranged building has been very apparent, and this fact has been brought to the attention of the House of Delegates in official reports previously submitted by the Board of Trustees. Careful consideration was given to the proposal that an entirely new building should be erected, but largely because of the unsettled economic conditions prevailing it was finally decided to enlarge the present building by the addition of two stories and to make alterations on several of the floors of the existing structure. When the building that has been used for several years was constructed, the plans provided for two additional stories. The Board of Trustees was advised by competent architects and engineers that, because of the splendid condition of the building and because of the comparatively large investment which it represented, it would perhaps be more desirable to erect two additional stories and to alter existing floors rather than to undertake the erection of an entirely new building. Another important reason which led to the decision to enlarge the present building was found in the fact that some of the bonds held by the Association had matured and were retired while others were called and replaced by securities bearing lower interest rates, and that it was found to be rather difficult to invest the proceeds of bonds that had matured or had been called without paying high premiums for new securities. The time seemed to be propitious for enlargement and improvement of the Association's housing facilities.

With the enlargement and alterations that are now being made it will be possible for departments closely allied to be brought together on one floor. This is particularly true of the Editorial Department, which is now scattered over three floors. In the future, this department together with the library will be located on the eighth floor of the enlarged building. It will be possible to have the offices of the Council on Pharmacy and Chemistry, the Council on Physical Therapy, the Committee on Foods and the Chemical Laboratory brought together on one floor and thus to correlate the work of these departments more closely than could be done in the past. Additional room will be made for other departments which have been forced to

occupy rather cramped quarters, and it is the hope and belief of the Board of Trustees that because of greater room that will be provided and more convenient arrangements that can be made the constantly increasing work that the Association is called on to do can be performed with greater facility and efficiency.

New elevators and new machinery for handling paper in the printing department will be included in the improvements. The brick walls on the Dearborn Street front and on the Grand Avenue side of the building have been replaced with stone and the building has thereby been much beautified.

An assembly hall, which will be located on the top of the building, will make it possible for meetings of the House of Delegates and for the Annual Conference of Secretaries of Constituent State Medical Associations as well as for other important meetings to be held at the Association headquarters.

It is expected that the building will be completed within a short time.

Because of constantly increasing demands on the printing department, it has become necessary to install additional linotype machines, to replace some presses and other machinery that is now outworn, to enlarge the stereotype room and to add to the equipment of that department.

The total outlay required for altering and enlarging the building and for providing new equipment and machinery will approximate \$425,000.

#### Summary

*Two stories have been added to the Association's building and alterations made on the lower floors.*

*An assembly room will be provided.*

*Enlargement of facilities in the mechanical departments is being made and outworn machinery is being replaced.*

*The offices of correlated departments will be brought together and more space will be available for offices that have heretofore been crowded.*

#### Council on Pharmacy and Chemistry

At the close of 1935 the Council completed its thirtieth year of service for the better interests of medicine. In a report of the Council fifteen years ago the following statements were made:

It was a genuine disappointment to the Council to find (since its organization in 1905) that some large and old established firms were not only unwilling to cooperate with the Council but in many instances exhibited a definite antagonism to the Council's work. The antagonism of certain pharmaceutical houses is therefore a matter of cold blooded business policy. When the medical profession as a unit will support the Council on Pharmacy and Chemistry in its work then such firms will find it good business policy to market only scientific preparations under truthful claims. Then the Council will be able to give such products the recognition they deserve—a recognition which the profession should demand as a prerequisite to their use.

Today the situation is decidedly better. All of the more important pharmaceutical houses cooperate with the Council to a very considerable degree. This in turn means that the thoughtful physician who buys or prescribes his drugs with scrutinizing care is supporting those concerns which market scientific preparations under truthful claims. This does not mean to be sure that some of these producers do not engage in practices that the Council does not approve, but it does mean that these houses are taking heed increasingly of the favorable attitude of the profession toward the Council.

There are many products which do not stand accepted by the Council for well defined reasons. Some members of the profession unfortunately, use products that are a distinct detriment to progressive medicine—a practice which encourages the producers to follow policies directly opposed to those of the American Medical Association and thus hinders the efforts of the Council and the Association to advance the cause of scientific medicine. As more and more of these men awaken to their responsibility the cause of rational therapeutics advances. The Council stands in the forefront of this advance.

#### PUBLICATIONS OF THE COUNCIL

*New and Nonofficial Remedies*—New and Nonofficial Remedies is in a constant state of revision. Supplements are issued throughout the year in order to keep subscribers informed of the products found acceptable in the interim between editions.

The U S Pharmacopeia XI and the National Formulary VI were issued in the latter part of 1935, though they will not become official until June 1 1936. It has required a considerable amount of time of the Council and its staff to revise New and Nonofficial Remedies to agree with descriptions of products in the new U S Pharmacopeia and the new National Formulary. Of the new additions to the Pharmacopeia many are products which stood accepted by the Council for New and Nonofficial Remedies and for which the A M A Chemical Laboratory had elaborated standards.

As is usual the 1936 volume of New and Nonofficial Remedies will contain additions of new drugs and notice of the omission of others. Considerable study has been given to the entire problem of vitamins, with the result that that section dealing with these products has been radically edited. The same applies to serums and vaccines and to other chapters.

During 1935 a number of new drugs were accepted by the Council. Among these were the following: Aminoacetic Acid (Glycocoll, Glycine), proposed for ameliorative treatment of such conditions as myasthenia gravis and progressive or pseudohypertrophic muscular dystrophy; Larocaine Hydrochloride, another local anesthetic of the procaine type; Alurate, Sodium Alurate and Ipral Sodium, additional barbitol compounds; Ephedrine Anhydrous and Ephedrine Hemihydrate, which replace the formerly accepted ephedrine alkaloid, Azochloramid, a new chloramine preparation claimed to have some advantages over chloramine, dichloramine and solution of chlorinated soda; Beta-Lactose, proposed for use in infant feeding and as a supplementary food for adults. It differs markedly in physical properties from the well known alpha-lactose (milk sugar); Pyrethrum Ointment, containing an extract of pyrethrum flowers proposed for use in the treatment of scabies; Meningococcus Antitoxin for use in specific meningococcal infection; Staphylococcus Toxoid, containing the hemolytic and dermonecrotic toxins of *Staphylococcus pyogenes-aureus* and *albus* altered by the formaldehyde-detoxifying process of Burnet (modified from Ramon); Mapharsen, the hemialcoholate of 3 amino 4-hydroxy phenylarsine oxide hydrochloride proposed for use in the treatment of syphilis and Iodobismutol with Saligenin, a solution of sodium iodobismuthite and sodium iodide in propylene glycol containing saligenin and a small amount of acetic acid to replace the formerly accepted Iodobismutol.

#### *Epitome of the U S Pharmacopeia and National Formulary*

—A drastic revision has been made of this useful book, which has a wide circulation. It constitutes a valuable guide to those who wish to know what is and what is not official in the two new official compendiums, and it gives as well an epitomized opinion of the relative value of the respective drugs.

*Useful Drugs*—This is a selected list of drugs prepared under the direction and supervision of the Council on Pharmacy and Chemistry. This, too, has been thoroughly revised and brought into conformity with the new Pharmacopeia and with the best current information as to the uses and value of the drugs described.

*Hospital Practice for Interns*—The revision of the Council's publications will be concluded with the reconstruction of this handbook for interns published jointly by the Council on Medical Education and Hospitals and the Council on Pharmacy and Chemistry. It is anticipated that it will be a most valuable reference book not only for the intern but for the practicing physician as well.

#### REPORTS OF THE COUNCIL

The Council has continued to inform the medical profession as to preparations considered and found wanting. Among the products so discussed were Dinitrophenol, Ho-Mo-Sol, Imbak Preparations, Ply #1, Ply #2 and Ply #3, Rossum, Scott's Cod Liver Oil Concentrate Tablets, Shadocol and Vegemucene. It should be realized that these represent only a small portion of the adverse reports as increasingly producers decide to take off the market products which have been found to be not acceptable. Furthermore a number of the products were not of sufficient importance to warrant publication in *THE JOURNAL* and therefore these reports will appear in the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry. There are many reports held in abeyance in order that the manufacturer may determine whether or not he can obtain



evidence to justify the claims. The Council permits such reports to be held in abeyance provided manufacturers agree not to promote the products actively during this period.

The Council by no means confines itself to publication of adverse reports. The descriptions of accepted products which appear almost weekly in THE JOURNAL are in themselves favorable reports. In addition the Council each year publishes noteworthy preliminary and special reports, many of which have been highly commended.

**Dinitrophenol**—When dinitrophenol was first brought to the attention of the profession, the Council issued a preliminary report. While recognizing the tremendous academic interest in this preparation, it warned the profession against the use of the drug on an extensive scale until adequate clinical evidence was available to show its harmlessness. During the time of its introduction and through 1935 the Council and also THE JOURNAL issued reports of warning. The Council refused to accept for inclusion in New and Nonofficial Remedies brands submitted to it. The conservative stand of the Council proved valuable in the light of the experience with this drug which shows it to be potent for irreparable harm in certain instances.

**Standardization and Labeling of Liver and Stomach Preparations for Use in the Treatment of Pernicious Anemia**—A report designed to create a greater degree of uniformity and accuracy in the potency declarations of the marketed liver and stomach preparations was prepared by the Council. This entailed much work and extensive consultation with authorities in the field. Since the publication of this statement (THE JOURNAL, Oct. 19, 1935, p. 1269) manufacturers have been in a position to assay their products according to a relatively uniform acceptable method. This permits a more accurate therapeutic evaluation of these products and gives the practicing physician a basis on which to determine within an approximately accurate range the potency of the preparations he is importuned to use. The statement of the Council has been received with unusual interest not only in this country but abroad.

**Thromboplastic Substances**—A hospital informed the Council that it had found a certain brand of Thromboplastin apparently to be the cause of some unusual sequelae in cases in which it was used as a topical hemostatic agent. Specimens of the product were purchased on the open market and a bacteriologic examination was made. Specimens of one of the brands were found to contain dangerous pathologic organisms. As a result the manufacturer withdrew the product from the market and all manufacturers of accepted thromboplastic preparations have sent protocols indicating the methods whereby the sterility of their products is controlled.

**Shotgun Vitamin Therapy**—Thirty years ago was the heyday of shotgun therapy in drugs. The theory was that, if careful diagnosis could not be made, the patient should be given a blunderbuss charge of drugs with the hope that one of them would hit the spot. A recurrence of this type of careless thinking today is occurring in the vitamin field where there is a tendency to give all sorts of combinations with vitamins and minerals when in reality it is but seldom that multiple avitaminosis occurs. Furthermore, there appears to be no more reason for combining the vitamins than there is for combining any of the other thirty-seven essential dietary constituents. In an article entitled 'Shotgun Vitamin Therapy' the Council pointed out that mixed vitamin therapy is on insecure ground and it will not accept mixtures of vitamin concentrates until the manufacturers are able to present adequate evidence of their rationality. The burden of proof for claims always lies on the one making the claims.

**Ethical 'Patent Medicines'**—A classic procedure of manufacturers of pharmaceuticals has been first to make an effort to introduce a product to the profession and if it was not taken up by the profession then to permit it to go to the public. During the year the Council issued a report on 'Vegemucine Not Acceptable for N. N. R.' This report provides an example of what may happen when a new firm with only a few established products introduces a preparation of mediocre value to the profession and fails to obtain Council acceptance. In the present case the firm is now marketing its ulcer treatment directly to the laity in true 'patent medicine' style.

**Vitamin A in Urinary Lithiasis**—The occurrence of urinary calculi in rats may be associated with a deficiency of vitamins in the diet. This fact has been pointed out by certain clinicians and also by some watchful proprietary houses in order to suggest to the profession the use of vitamin A in the case of urinary lithiasis in human beings. A comprehensive report, requiring much time and effort on the part of the consultant who was asked to prepare it, was presented to the profession. This report showed a lack of evidence of the value of vitamin A in such conditions. In the light of this report it seems unlikely that manufacturers will be so bold as to advance blatant claims for the use of vitamin A preparations in the prevention and treatment of urinary lithiasis. The sad commentary, however, is that such claims were made before a critical survey had been published.

#### SPECIAL INVESTIGATIONS

**Catgut Sutures**—During 1935 the Council authorized an investigation of the market supply of sutures. Work has been started under the auspices of a special committee of the Council. It is anticipated that it will be a year before this work is sufficiently advanced to warrant the Council's issuing its report. While sutures do not come directly in the purview of the Council on Pharmacy and Chemistry, it was felt that the examination could be made better under the Council's supervision, because of its facilities for such investigations.

**Glandular Physiology and Therapy**—For the past few years the field of organotherapy has grown so rapidly that the Council thought it advisable that there should be an outstanding series of articles on both the physiology and the therapy of these products. Thirty-two articles were published in successive issues of THE JOURNAL in 1935. The Council's ability to obtain the services of the experts who contributed these articles, not only in the United States but in foreign countries as well, shows how highly the work of the Council is regarded. The vast amount of time and effort expended in this comprehensive review is illustrated when one considers the size and the scholarly paraphernalia of the bound volume of these articles. Incidentally, the articles were revised after publication in THE JOURNAL and previous to issuance in book form. As an indication of the high regard in which this book has been held there have been requests from nine countries asking for the privilege of translation. As a result of this series of articles the Council will be in a better position to evaluate the status of proprietary glandular products.

The matter of nomenclature for glandular products is in a chaotic condition. The Council therefore has appointed an Advisory Committee on the Nomenclature of Endocrine Principles which consists of sixteen experts most of whom contributed to the series of articles just discussed. This group is now endeavoring to bring about some degree of uniformity in endocrinologic terminology. It is anticipated that the reports of this committee will be made available to the profession in the next few months. Thus, not only will the physician be aided in having a language by which he may determine similarity or dissimilarity of the various glandular products he is importuned to use but medical literature as well will be benefited by the uniform terminology.

**Nonspecific Protein Therapy**—There were also published under the auspices of the Council two articles on nonspecific protein therapy written by Dr. Ludvig Hektoen and Dr. Russell L. Cecil. These contributions should aid in overcoming the chaotic state of present knowledge of this subject. They are particularly valuable in view of the questionable proprietary products of this kind which are currently "detailed" to physicians.

#### PROBLEMS BEFORE THE COUNCIL

In the report to the Trustees last year the Council discussed the use of letters and numbers in names reporting its gratification that in the case of all accepted products having numbers or letters in connection with names the manufacturers, with one exception agreed to omit them from the name. The single exception was Hexylresorcinol Solution S. T. 37. The Council is now gratified to report that the firm has indicated that it has ceased advertising the product to the public in the manner in which it was being done and has decided not to use the number in connection with the name. Pharmaceutical manu-

facturers themselves are apparently pleased by the Council's ruling on numbers, which ameliorated a condition that had already become chaotic.

**Committee on Vitamins**—The confused vitamin situation caused the Council to suggest to the Committee on Foods the formation of a Cooperative Committee on Vitamins representing the two groups. The members of this committee, composed of Prof W E Anderson, Dr E M Bailey, Dr K D Blackfan, Dr S W Clausen, Dr Morris Fishbein, Dr P C Jeans, Dr E M Nelson, Dr W W Palmer, Dr G F Powers, Dr L J Roberts, Dr M S Rose and Dr Torald Sollmann, were in session for a day and a half considering reports of referees on special vitamin problems. Knowledge in the field of vitamins has grown so rapidly and the methods under which vitamin products are prepared and marketed have changed so greatly that it was necessary for the Council to formulate certain guiding principles for the benefit of both manufacturers and the profession. These concern the revision of the dosage of cod liver oil in view of its increased potency, the problem of the use of antioxidants, permissible claims for vitamins A, B, C and D, minimum daily dosage of vitamins B and C that would be significant, the irrationality of certain vitamin combinations, the lack of evidence for vitamin E requirements in the human being, the matter of vitamin D fortification of milk as well as the general problem of fortification of foods, together with a number of collateral questions. Both the Council and the Committee on Foods have acted on these considerations and are preparing statements for publication.

The Council regrets that one state medical society, whose journal supports the Council in its advertising pages, has seen fit to criticize the Council without first making inquiry to determine the facts. In this particular instance the charges were based on the most flimsy evidence and are untrue. Had the medical society taken the pains to inquire, it would seem certain that it would not have made the charges that it did. As it is, a pharmaceutical concern whose products are not accepted has taken up charges of the state medical society and broadcast them in its house organ. In the interest of fairness, if for no other reason, it would seem reasonable to expect that a constituent part of the American Medical Association would refrain from making such charges until inquiry has been made to ascertain the facts in any given case.

#### REORGANIZATION

At times certain problems of the Council on Pharmacy and Chemistry, the Committee on Foods, and the Council on Physical Therapy overlap as a result it became apparent that each group has been maintaining separate offices and personnel for individualized work of interest to all three groups. It therefore seemed advisable that the work of these departments should be better correlated and that the offices be brought under one executive management. To do so required changes in physical arrangements, which was one of the contributing causes to the necessity of an enlarged building program. A plan, acceptable to all three groups, has been devised as follows: (1) that the administrative work of the three councils in the headquarters office be correlated under an executive secretary; (2) that a Committee on Policy, Rules and Procedure be established for the three groups, which will make recommendations on these matters. It is understood that the Committee on Policy, Rules and Procedure will suggest but not direct the work of the groups. The councils and the Committee will continue to function as single entities. The work of reorganization is now under way.

#### MEMBERSHIP OF THE COUNCIL

During the year the Council lost by death a most valuable member, Prof Lafayette B Mendel. Professor Mendel had served well the Association, both as a member of the Council since 1917 and as a member of the Committee on Foods since its inception in 1929. The Council issued a commemorative statement on the work of Professor Mendel which was published in *THE JOURNAL* Feb 15, 1936, page 539. During 1935 Dr Stanhope Bayne-Jones, Dr Kenneth Blackfan and Dr Eugene Du Bois resigned from the Council because of increasing responsibilities which they were forced to assume in connection with their academic work. These gentlemen have continued to aid the Council. Dr George H Simmons who has

been a member of the Council since its inception in 1905 and under whose direction the Council was founded, felt compelled to give up active participation in its work. In view of his long and valuable services, the Board of Trustees, at the suggestion of the Council, was pleased to confer on him an honorary life membership in the Council. The following new members were elected to fill the vacancies created by the three resignations: Dr David P Barr, professor of medicine at Washington University, St Louis, Dr S W Clausen, professor of pediatrics University of Rochester, Rochester, N Y, and Dr E M Nelson, chief of the Vitamin Division, U S Department of Agriculture, Washington, D C.

#### Summary

*The Council has completed thirty years of service. Conditions today are decidedly better, though there are still some physicians who have not yet fully realized the detrimental influence of certain types of low grade pharmaceutical concerns. However, the scientific standing of the average pharmaceutical house is vastly improved.*

*During 1935 a number of new and unusual drugs were accepted by the Council for inclusion in New and Non-official Remedies.*

*Useful Drugs and the Epitome of the U S Pharmacopeia and National Formulary have been thoroughly revised to bring them into conformity with the new Pharmacopeia and the new National Formulary. They enjoy wide distribution.*

*The Council has continued the issuance of reports on the status of untried or previously unannounced drugs. It is still looked to for the standardization of new products.*

*The Council has under way a special investigation of catgut sutures.*

*The series of articles on Glandular Physiology and Therapy reports on a much needed survey of this field and has been a decided aid in evaluating the status of proprietary and nonproprietary glandular products. The articles have been published in book form. Requests for the privilege of translating the articles have been received from nine different countries.*

*The Council published two articles on Nonspecific Protein Therapy, which should aid in overcoming the chaotic condition of this subject.*

*The Council on Pharmacy and Chemistry and the Committee on Foods have formed a Cooperative Committee on Vitamins. This committee has made recommendations on vitamin problems, the decisions on which are soon to be issued. It has been emphasized to physicians as well as to manufacturers that in this field particularly a conservative attitude, based on adequate clinical evidence, is the criterion of sound therapeutic progress.*

*The Council on Pharmacy and Chemistry, in cooperation with the Council on Physical Therapy and the Committee on Foods, has adopted a reorganization plan which provides for a federation of the administrative work of the three groups and a correlation of overlapping problems.*

*Physicians are making increased use of the conclusions of the Council on Pharmacy and Chemistry, as evidenced by the increase in work.*

#### Chemical Laboratory

Among the important alterations made in the building of the Association will be those concerned with the Chemical Laboratory. The facilities of the Laboratory will be greatly improved and extended through the provision of a room accurately air conditioned, which will permit micro analysis, and of a second room properly equipped for physical work of such nature as requires the greater use of optical instruments than has heretofore been permitted. The capacity of the Laboratory will be somewhat enlarged and with the improvements to be installed the accuracy as well as the scope of the Laboratory's work will be considerably enhanced.

The activities of the Chemical Laboratory have been carried out along previously established lines. A number of important

new products have been examined for the Council on Pharmacy and Chemistry, and the careful scrutiny that has heretofore been maintained with respect to certain widely used products has been continued in order to insure that these products shall be made available to the profession in potent form and in accurate dosages.

A very considerable amount of the Laboratory's work has been concerned with arsenicals and mercurials, bismuth compounds and the examination of dyes and other products of important chemical groups.

The Chemical Laboratory has continued to cooperate as fully as possible with other departments of the Association.

### Council on Physical Therapy

For ten years the Council on Physical Therapy has actively prosecuted its assigned work of analyzing, investigating and reporting on physical therapy methods. Through the columns of *THE JOURNAL*, reports on investigations of apparatus, surveys of physical therapy treatments, and special articles on specific problems have been made available to the profession. In the ten years of its active existence there has been a growing appreciation by the profession of physical therapy.

The interests and activities of the Council in 1935 have been focused on the instruction of the practicing physician concerning effective physical therapy methods, the improvement of curriculums for college physical therapy courses, the development of better modes of treatment, and the consideration of apparatus.

### EDUCATIONAL ACTIVITIES

Sixteen articles on physical therapy and related subjects have been prepared by specialists and, after adoption by the Council, published in *THE JOURNAL*. These authoritative articles have apparently been favorably received by the profession, since numerous requests for reprints of them have been made by inquiring physicians. The Handbook of Physical Therapy is undergoing a thorough revision, and a number of the aforementioned articles will be incorporated in the volume. In all its publications the Council endeavors to point out the importance of physical therapy as an adjunct in treatment, rather than as an all inclusive, independent agency.

The Council has cooperated with the Council on Medical Education and Hospitals in the formulation of standards for curriculums for schools of physical therapy technicians. A registry operated under the direction of the American Congress of Physical Therapy has been prepared, and the two councils have cooperated with the congress in this work. It appears that most class A medical schools have made some provision for physical therapy instruction. Hence the physician of tomorrow will have a working knowledge of this branch of therapy, but for the general practitioner of today who has been out of touch with some of the recent developments, the Council believes that a comprehensive program of extension instruction is needed.

Because a certain number of general practitioners obtain their information on physical therapy through contact men representing manufacturers of apparatus, the Council feels that a very narrow view of the possibilities of physical therapy is imparted to them. For this reason the Council is now in a position to suggest, through its group of consultants on education, qualified speakers on the simple methods of physical therapy which may be practiced by any physician without the use of expensive apparatus. In the opinion of the Council, at least 90 per cent of physical therapy treatments can be given by simple measures, such as heat, massage and exercise. Foregoing personal gain, Council members, consultants and specialists in physical therapy have accepted invitations from state and county medical societies and have donated their services freely, reading papers and giving demonstrations.

Motion pictures dealing with fundamental and practical aspects of physical therapy methods are available for loan. They may be borrowed by writing to the secretary of the Council.

In addition to the exhibit at the regular annual session at Atlantic City, the Council has sponsored exhibits on physical therapy in cooperation with the Bureau of Exhibits of the Association at ten state, county and special medical society meetings.

### CONSIDERATION OF APPARATUS

Probably one of the most important educational programs of the Council is the publication of reports on the consideration of submitted apparatus. Many machines are constantly being manufactured and sold to the physician and the public, involving the use of various physical agents, such as high frequency electrical energy, radiant energy and manipulative exercise. The Council investigates such appliances and accepts for its official lists those which are believed to have merit. Any which are believed to be worthless or harmful are made the subject of adverse reports. During the year the Council considered seventy-seven pieces of apparatus. Of this number forty-two were accepted, three were rejected, and the remainder are still under consideration. Other appliances have been submitted to the Council, but the requirements for submission have not been completed by the promoters. Therefore they have not been formally considered. In some instances, devices for which extravagant claims have been made, and which involve nothing new in principle, have been withdrawn from the market as the result of anticipation on the part of the manufacturer of the publication of a disparaging Council report.

A booklet entitled "Apparatus Accepted by the Council on Physical Therapy" has been prepared, in which accepted devices and their indications are given. This booklet has been rather widely distributed to physicians requesting information on accepted apparatus.

Because of the demand for reliable information, the Council has agreed to consider shoes and orthopedic appliances for which claims of a therapeutic nature are made. Therefore, standards for considering shoes have been formulated. Cooperation has been maintained with the Council on Pharmacy and Chemistry and the Bureau of Investigation of the American Medical Association, the Better Business Bureaus of various cities, the National Bureau of Standards, and the American Standards Association. This cooperation has aided the Council in furnishing reliable information.

Consideration of ophthalmologic devices, including lenses and retinoscopes, has been carried on. Some useless devices have been kept off the market through the cooperative efforts of the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association with the Council on Physical Therapy.

In the course of the year the Council has considered positive and negative pressure apparatus, oxygen tents, resuscitating apparatus, infra-red and ultraviolet generators, orthopedic appliances, radium and radon products, and x-ray equipment. Hearing aids and audiometers have been considered by the Council, assisted by the American Society for the Hard of Hearing. The Council is greatly indebted to a number of physicians in various parts of the country, who have rendered most able assistance in promoting its work. Because of the large number of devices that have been considered, the volume of correspondence has greatly increased.

### SHORT WAVE DIATHERMY

A large share of the Council's time has been devoted to the consideration of short wave diathermy equipment. In view of the misleading and unwarranted statements formerly made for these devices, the Council was obliged to make a special study of them and report its conclusions. After due investigation the Council went on record to the effect that the therapeutic efficacy of short wave diathermy was attributed only to the heat generated in the tissues of the body and not to any specific biologic or bactericidal effect. Fourteen short wave diathermy machines have been accepted, although at the present time there appear to be some thirty or more manufactured and offered for sale to the profession.

During the past year progress has been made in research. Six grants were awarded. Eleven articles were published during 1935 on specialized fields of physical therapy, as a result of grants awarded the year before. Applications for grants in aid of research may be obtained from the secretary. These grants are awarded for purchasing material and instruments and not for compensation or salaries.

### Summary

During the year 1935 the work of the Council on Physical Therapy has been focused on (1) extension instruction for the general practitioner, (2) consideration of apparatus and publication of reports, (3) investigation of new physical therapy methods having a semblance of practicability

**Educational Activities**—Sixteen articles on physical therapy and related subjects prepared by Council members and by other specialists have been adopted and published in *The Journal*. Most of these articles are included in the thoroughly revised *Handbook of Physical Therapy*.

This council has cooperated with the Council on Medical Education and Hospitals in formulating curriculums for schools of training for physical therapy technicians and has cooperated with the American Congress of Physical Therapy in establishing a registry for technicians. This important work is designed to maintain high standards in the practice of physical therapy.

Aided by its consultants on education the Council has suggested to many county and state medical societies qualified speakers on physical therapy subjects. These speakers have stressed the importance of using simple physical therapy methods readily available to the practicing physician in contrast to the therapeutic value of expensive apparatus. Exhibits on physical therapy subjects have been sponsored at ten county state and special medical society meetings.

**Investigation of Apparatus**—Seventy-seven pieces of apparatus have been considered of which forty two were accepted and three were rejected. The remaining thirty-two are still under consideration. Reports have been published on special investigations sponsored by the Council. A booklet entitled "Apparatus Accepted by the Council on Physical Therapy" has been prepared and has been widely distributed to physicians requesting information on accepted products.

Standards have been formulated and adopted for the consideration of shoes and orthopedic appliances. Cooperating with the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association the Council has investigated lenses, retinoscopes and other ophthalmologic devices.

Apparatus the Council has considered falls into the following groups: infra-red and ultraviolet generators, orthopedic appliances, surgical supports, positive and negative pressure apparatus, oxygen tents, resuscitation apparatus, radium and radon products, x-ray equipment, hearing aids, audiometers, and surgical and medical diathermy apparatus. Of the thirty or more short wave diathermy machines manufactured and offered for sale to the profession, only fourteen have been accepted.

Six research grants were awarded. Eleven articles dealing with physical therapy problems were published in various journals as a result of grants awarded previous to 1935.

### Bureau of Legal Medicine and Legislation

#### FEDERAL LEGISLATION

A summary of federal legislation of interest to physicians was published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* 31:18 (Jan.) 1936. The measures of outstanding importance are the Social Security Act and the Copeland food drugs, devices and cosmetics bill.

**Social Security Act**—This act imposes certain federal taxes on employers and employees. It proposes through the use of a part of the proceeds of such taxation to penalize the inhabitants of such states as do not levy taxes of a similar character for some of the purposes of the act. The proceeds of such federal and state taxation, supplemented by a considerable addition from money derived from general federal and state taxes are to be used for old age "assistance," old age benefits, unemployment compensation, vocational rehabilitation, child welfare services and to dependent children, assistance to crippled children,

maternal and child health activities, aid to the blind, state public health administrative activities, and research in the field of public health and sanitation.

The taxes imposed by the Social Security Act have no specific relation to practitioners of medicine. Such practitioners are liable for such taxes only as they are employers and employees, and the taxes imposed on them as employers and employees do not differ in any way from the taxes imposed on all other employers and employees. The provisions of the act so far as they relate to the taxation of physicians and hospitals were discussed in *THE JOURNAL*, Jan. 25, 1936, page 322. An analysis of the act in its entirety was published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* 31:42 (Feb.) 1936. The taxation and subsidy features of the Social Security Act are based on the hypothesis that the federal government has the right through taxation and state subsidies, to induce or compel states to enact legislation that is in essence dictated by the federal government for purposes predetermined by the federal government. The soundness of this hypothesis has been questioned, but pending a determination by the United States Supreme Court the medical profession should cooperate in good faith in carrying out the provisions of the act.

**Federal Health Insurance**—Specific reference to health insurance was deleted from the Social Security Act before it passed. The act however authorizes the Social Security Board to investigate "social insurance" and social insurance covers health insurance. It is quite within the range of possibility, therefore, that the board may in due time undertake the investigation of health insurance. At present (March 17) there is no evidence of its intention to do so.

In the Senate a resolution is pending before the Senate Committee on Education and Labor, proposing to authorize that committee to make a complete investigation to determine the best and most effective kind of legislation to provide a system of health insurance. In the House of Representatives a bill proposing a general system of social insurance including health insurance for workers and farmers was favorably reported by the Committee on Labor before the enactment of the Social Security Act for which act it was unsuccessfully offered as a substitute in the course of the debate. It is hardly too much to say that there is no likelihood of any federal health insurance legislation during the current year.

**Food, Drugs, Devices and Cosmetics Legislation**—Seven bills were before the Seventy-fourth Congress relating to food, drugs, devices and cosmetics. The Senate Committee on Commerce through a subcommittee held hearings on the several pending Senate bills and subsequently reported to the Senate with amendments. S. 5 commonly referred to as the Copeland bill. The Bureau of Legal Medicine and Legislation cooperated to the extent of its ability with the Senate committee and with the Food and Drug Administration of the Department of Agriculture in efforts to bring about the enactment of an effective law. The bill reported however in the form in which it was passed by the Senate gives in its entirety hardly more promise of effectiveness than does the law now in force the Food and Drugs Act of 1906. So far as it relates to drugs, it is distinctly weaker. The Bureau has made efforts to have the bill amended or rewritten by the House Committee on Interstate and Foreign Commerce before which it is now pending so as to make it effective legislation if it is enacted.

**Medical and Hospital Care for Employees on Emergency Relief Rolls**—The Emergency Relief Appropriation Act of 1935 approved April 8, 1935 materially modified the medical and hospital benefit provided for employees on emergency relief payrolls. Under an administrative ruling made under the act unemployed persons were classified as employable and "unemployable." Unemployable persons were such as were physically or mentally incapacitated and unfit for employment even if employment should be offered them. Employable persons were persons not so handicapped. Under the new order, all employable persons were turned back on the several states and their political subdivisions for relief, the federal government assuming no responsibility for their medical or hospital care. For employable persons on relief, the federal government set up an organization which it denominated the Works Progress Admin-

istration, commonly referred to as the WPA. Under the Civil Works Administration, which preceded the Works Progress Administration, all employees had been entitled to the medical and hospital benefits afforded regular employees of the federal government. Under the Works Progress Administration, however, employees are entitled to such benefits only when they are suffering from traumatic injury incurred in the line of duty, for disease contracted in the line of duty, unless it can be traced directly to trauma, the employee is entitled neither to medical nor to hospital benefits. Such medical and hospital care as is provided is given through the United States Employees' Compensation Commission, in accordance with the terms of the United States Employees' Compensation Act of 1916, as amended.

The fact that employees in the Works Progress Administration are entitled to medical and hospital benefits only in event of traumatic injury incurred in the line of duty, and the fact that the compensation paid such employees is ordinarily inadequate to enable them to provide adequately for the care of their dependents, have tended to throw back on the states and their political subdivisions the problem of providing hospital and medical care in such cases, notwithstanding the fact that the head of the household is an employee of the United States government and in receipt of government wages.

Incidentally, a similar situation seems to have arisen in connection with the activities of the Rural Resettlement Administration, whose wards in rural resettlement projects seem to have been, in some cases at least, so poorly provided for in the way of money and other benefits as to render it difficult for them to provide adequate medical and hospital service for themselves and their families and to throw on the local community and particularly the local medical profession the problem of caring for them in event of illness, injury and childbirth.

In the discharge of its duties under the Works Progress Administration, the United States Employees' Compensation Commission has cooperated with the Bureau of Legal Medicine and Legislation and with the several national hospital associations in efforts to devise plans whereby to provide adequate medical and hospital care for injured workmen and yet to provide reasonable compensation for the physicians and hospitals rendering service. That the plans worked out have operated satisfactorily, on the whole, is shown by the absence of complaints from individual physicians and from organizations. The only complaint of moment that has been received related to the furnishing of roentgenograms by hospitals a matter that in some of its aspects has been before the House of Delegates on previous occasions but which apparently has not been settled to the satisfaction of all interested parties.

*Veterans' Legislation*—During the first session of the Seventy-Fourth Congress forty-six bills were introduced proposing to erect either new hospitals or domiciliary facilities for veterans or to enlarge existing facilities. Presumably as a result of the public hearings on these bills, the Second Deficiency Appropriation Bill carried an appropriation of \$21,250,000 for hospital and domiciliary facilities. It is not contemplated that any new hospitals will be erected out of this appropriation. According to the report of the House Committee on Appropriations the appropriation is to provide a total of 11,466 beds at thirty-eight existing veterans' hospitals and domiciliary institutions: 6,835 beds for neuropsychiatric patients; 455 beds for tuberculous patients; 2,276 general medical beds and 2,250 domiciliary beds. This represents a building program for a five-year period, according to the Administrator of Veterans Affairs. Yet already Congress is being importuned to appropriate still other sums for hospitals for veterans. One bill proposes to erect a 300-bed hospital in western Texas; apparently a general hospital, another to provide for the enlargement of the veterans hospital at San Fernando, Calif. to accommodate tuberculous patients, a third to construct a new wing of approximately 350-bed capacity on the veterans general hospital at Los Angeles.

No legislation has been introduced in Congress since the last report to the House of Delegates proposing to enlarge the privileges of veterans with respect to medical care and hospitalization.

*Reserve Officers Training Corps*—Pursuant to action taken by the House of Delegates action was initiated looking toward

the continuation of medical units in the Reserve Officers' Training Corps. The War Department Appropriation Bill, as it passed the House of Representatives Feb. 14, 1936, however, contained the proviso that has been incorporated in all such bills since 1932 prohibiting the expenditure of money from the appropriation for the Reserve Officers' Training Corps, for the maintenance of medical units. As passed by the Senate, that prohibition was eliminated. It seems not improbable, therefore, at the present writing, that the training of medical students for military service in case of need will be resumed at an early date. It is hoped that the medical colleges of the country will cooperate in making such training effective.

*Reorganization of Federal Narcotic Service*—For the purpose of increasing the efficiency of the several police services of the Treasury Department, a bill was introduced in the House of Representatives Feb. 25, 1936, proposing to create in that department a Secret Service Division, to be made up of the enforcement division of the Alcohol Tax Unit of the Bureau of Internal Revenue, the Customs Agency Service of the Bureau of Customs, and the Bureau of Narcotics. Under this proposed reorganization, the Commissioner of Narcotics would no longer be responsible directly to an assistant secretary of the treasury but would report to the chief of the Secret Service Division. He would continue to perform, however, all functions performed under treaties to which the United States is a party, so far as such functions require communication or cooperation with foreign governments, all functions relating to cooperation with the states (including the development of state laws), all functions relating to the development of treaties with regard to the supervision and control of traffic in narcotic drugs, and the function of supervising the legitimate traffic in narcotic drugs. In view of strong representations made on behalf of the Treasury Department that the proposed plan of reorganization would contribute materially to efficiency, no sufficient reason appears for opposing the enactment of this bill. The objection raised on behalf of pharmacists and others interested commercially in narcotic drugs, that it would bring legitimate professional and business men under the surveillance of officers and agents of the Secret Service Division, seems hardly sufficient to justify opposition to the plan proposed as a method for increasing the efficiency of the enforcement of certain federal laws, among them the laws relating to narcotic drugs.

*Contract Surgeons of the Spanish-American War*—Pursuant to the action of the House of Delegates, the Bureau of Legal Medicine and Legislation has endeavored to obtain for contract surgeons of the Spanish-American War benefits similar to those accorded to other participants in that conflict, more particularly such as have already been accorded to contract nurses. Unfortunately, the beneficiaries of such proposed legislation are not organized and vocal, and the efforts of the Bureau have struck no responsive chord in Congress.

*Investigation of Silicosis and Other Occupational Diseases*—Predicated on a considerable number of cases of silicosis alleged to have resulted from the digging of a tunnel at Gauley Bridge, W. Va. a resolution was introduced in the House of Representatives Jan. 13, 1936, proposing to authorize the Secretary of Labor to appoint a board to investigate the health conditions of workers employed in the construction and maintenance of public utilities. The House Committee on Labor, to which the resolution was referred held hearings on the resolution. The Bureau of Legal Medicine and Legislation brought to the attention of the committee the work on silicosis already undertaken by the United States Public Health Service and by the Bureau of Mines and suggested that representatives of the bureaus named be called before the committee. Following the hearing, the chairman of the House Committee on Labor introduced another resolution proposing to authorize the Committee on Labor, or a subcommittee to make an investigation concerning the health conditions of workers employed in the construction and maintenance of mining and tunneling projects, with particular reference to silicosis and other respiratory diseases. This resolution is pending before the Committee on Rules of the House. A Senate concurrent resolution proposes that a joint committee, made up of Senators and Representatives, make a similar investigation with respect to the diseases of metal miners. No good reason appears why investigations of this type should not



be conducted either by the Public Health Service or by the Bureau of Mines, or cooperatively by both, instead of by congressional committees

**Birth Control Legislation**—Six bills are now pending in Congress to legalize the dissemination, under conditions stated in the bills, of information, preparations and devices designed, adapted or intended for the prevention of conception. Three bills are pending designed to facilitate the prosecution of persons who send such information, preparations, devices, and indecent and obscene articles through the mail

#### STATE LEGISLATION

A survey of state legislation of interest to the medical profession was published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* 30 121 (Nov.), 152 (Dec.) 1935. Throughout the year, when state legislatures were in session, reports of the activities of state legislatures so far as they might have a direct bearing on the medical profession were published in the news columns of *THE JOURNAL*, and the Bureau of Legal Medicine and Legislation was in constant correspondence with constituent state medical associations in those states to which such legislation related. The more important measures of interest to the medical profession are discussed herewith.

**Health Insurance**—Bills proposing the establishment of systems of compulsory state health insurance were considered in the legislatures of six states, namely, California, Illinois, Massachusetts, Nebraska, New York and Pennsylvania. None of the bills considered in those states were enacted. Most of them were patterned closely after the bill described by its proponents as a "Social Security Bill for Health Insurance" but which soon became popularly known as the "Epstein bill," because of the activities of one Abraham Epstein, the secretary of the American Association for Social Security, by which the bill was prepared, drafted and sponsored. California health insurance legislation attracted an unusual amount of attention because it was introduced after a lengthy investigation by a committee of the California senate and was supposed to have the support of the medical profession of the state. During the current year, 1936, at the present writing health insurance bills have been introduced in two of the nine state legislatures in regular session. These bills have been patterned after the Epstein bill.

**Professional Use of Narcotic Drugs**—The uniform narcotic drug act, drafted by the National Conference of Commissioners on Uniform State Laws, with the cooperation of the Bureau of Legal Medicine and Legislation, was enacted in 1935, with or without modification, in nineteen states, namely, Alabama, Arizona, Colorado, Connecticut, Delaware, Georgia, Illinois, Indiana, Maryland, Nebraska, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, South Dakota, Utah, West Virginia and Wisconsin. So far in 1936 the uniform act has been enacted in one state, Mississippi. The act, in its original or in a somewhat modified form, is now in force in twenty-nine states. While there has been an effort to strengthen the act in some states by making it apply to cannabis and by providing for the commitment of addicts, both of which matters the National Conference of Commissioners on Uniform State Laws thought best to leave to the judgment of individual states, in too many cases the tendency has been covertly to weaken the act. The tendency has manifested itself particularly in modifications of the provisions of the model act designed to facilitate the sale of so-called exempt preparations, preparations that because of their relatively small narcotic drug content are allowed to be sold without prescription. Obviously, however, no matter how attenuated may be the narcotic potency of an exempt preparation, it will serve the purpose of a narcotic addict if he can obtain it in sufficient quantity and the modifications that have been adopted in some states are strongly suggestive of having been designed so as to permit the narcotic addict to do so.

There has been a distinct tendency to add cannabis to the list of so-called narcotic drugs covered by the uniform state narcotic drug act, and even in states in which that act has not come up for consideration, legislation has been proposed independently to regulate the production, preparation and distribution of cannabis. The drug according to common reports seems to be a public menace through its use under the designation of "marijuana," for the preparation of cigarettes.

Laws prohibiting the sale and distribution of certain hypnotic or somnifacient drugs, except on the prescriptions of licensed physicians, dentists or veterinarians, were passed in Alabama, Arkansas, Colorado, Maryland, Nebraska, Oregon and Pennsylvania. Legislation of this type is now in force in fourteen states.

Pennsylvania took cognizance of the danger incident to the indiscriminate distribution of cinchophen, atophan, atogumol and dimetophenol and prohibited the sale of such preparations except on physicians' prescriptions. In California a bill to restrict the distribution of dimetophenol and of thyroid extract passed the legislature but was killed by the governor through a pocket veto.

**Laws Relating to the Practice of the Healing Art**—A basic science act was enacted in Iowa. Medical practice acts were amended in Arizona, Arkansas, California, Connecticut, Georgia, Maine, North Carolina, Oklahoma, Oregon, Pennsylvania and Wisconsin. Laws regulating the practice of osteopathy were extensively amended in Iowa and in New Jersey, which will extend the scope of osteopathic practice. No chiropractic legislation was enacted except in Connecticut, where a law was passed permitting chiropractors to treat patients under the workmen's compensation act. No new naturopathic legislation was adopted.

A physicians' lien law was enacted in North Carolina permitting physicians to establish liens to secure payment when they treat persons injured through the fault of others, on such settlements and judgments as may accrue to the injured patient by reason of his injuries.

Gunshot and other wounds were made reportable by physicians treating persons so injured in Minnesota and New Hampshire. Reports are to be made to designated police officials.

**Hospital Service Corporations**—The formation of corporations to provide on a "nonprofit" basis for the hospital care of their members or subscribers was authorized in Alabama, California, Illinois and Maryland. The Alabama and California laws seem definitely to prohibit the rendering of medical and surgical services by such corporations under their insurance contracts, but the extent of the services that such corporations can render in Illinois and Maryland is not clear.

**Workmen's Compensation**—The workmen's compensation act in New York was amended so as to permit an injured employee to select his own physician from a roster of physicians prepared by the industrial commissioner on the recommendation of the medical societies of the several counties of the state. Physicians other than those recommended by such societies may be included on the roster on application to the commissioner. The commissioner is authorized to establish a schedule of fees for medical treatment and care. In New York, too, disability due to occupational disease of any kind in any employment covered by the workmen's compensation act was made compensable. In North Carolina twenty-five named occupational diseases were made compensable. In West Virginia, silicosis was made compensable.

**Miscellaneous Legislation**—Clinical laboratories must be licensed under a law recently enacted in California. In Oregon, a new law provides for the registration and regulation of laboratories in which human or animal body fluids, secretions or excretions are examined for the determination of the presence or absence of infectious agents.

Laws requiring a physical examination of applicants for marriage licenses were enacted in Connecticut and Montana. In New York and Wisconsin, laws were enacted permitting the introduction in evidence in certain cases, of the results of blood tests. Bills for the regulation of experiments on living animals were introduced in the legislatures of New York, Wisconsin and California but were not passed. Two bills introduced in Congress proposing to prohibit experiments and operations on living dogs in the District of Columbia are still pending.

#### UNITED STATES DEPARTMENT OF HEALTH

At the Special Session of the House of Delegates in Chicago in February, 1935 there was referred to the Bureau of Legal Medicine and Legislation and the Board of Trustees a resolution introduced by Dr. Charles E. Humiston, Illinois as follows:

WHEREAS The general welfare of the people of the United States depends to the highest degree on a favorable condition of the public health and



'WHEREAS, The health activities which are proper to the federal government are not now closely coordinated but are scattered among a number of unconnected administrative departments therefore be it

*Resolved* By the House of Delegates of the American Medical Association assembled in special session for the sole purpose of giving consideration to the present national emergency that we urge on the President and the Congress the advisability of bringing all governmental health matters together in a new department under a new cabinet member to be known as the Secretary of Health such new cabinet member to be a doctor of medicine —*Proceedings House of Delegates Special Session 1935 pp 5 and 9*

The President, Aug 15, 1935, created an interdepartmental committee to study the health activities of the federal government and closely related welfare activities, with a view to their better coordination. This committee is made up of an assistant secretary of the treasury, an assistant secretary of the interior, an assistant secretary of agriculture and a second assistant secretary of labor. It is authorized and directed "to assume responsibility for the appointment of special committees to be composed of physicians and other technically trained persons within the government service to study and make recommendations concerning specific aspects of the government's health activities." The President expressed the hope that through the appointment of this committee a "complete coordination of the government's activities in the health field" might be effected. Up to present writing the committee has not submitted its report.

More recently, Feb 26, 1936, under authority of a Senate resolution, the vice president appointed a special Senate committee to investigate all executive agencies of the government with a view to their coordination. This, of course, includes the agencies carrying on the public health activities of the government. The committee consists of Senator Byrd of Virginia, Senator Robinson of Arkansas, Senator O'Mahoney of Wyoming, Senator McNary of Oregon and Senator Townsend of Delaware. No report has been made by this committee up to present writing.

In this connection it seems proper to call attention to the extent to which the United States Public Health Service is now authorized to cooperate with the various other branches of the executive department and the independent offices of the federal government and with state agencies in the solution of their medical problems. This limits, of course the tendency toward the development of independent medical services in other branches of the government.

The law now provides that, on the request of the head of an executive department or an independent establishment which is carrying on a public health activity, the Secretary of the Treasury may detail officers and employees of the Public Health Service to such department or independent establishment to cooperate in such work. It provides specifically for the detailing of medical officers of the Public Health Service for cooperation in health, safety and sanitation work in the Bureau of Mines and for cooperation with the Department of Agriculture in the administration of the Food and Drugs Act of 1906 as amended. The Secretary of the Treasury is authorized and directed furthermore, to utilize the personnel of the Public Health Service, so far as may be possible in aiding to combat and suppress "Spanish influenza" and other communicable diseases in conjunction with the personnel and the facilities of the medical departments of the army and the navy, acting under the authority of the Secretary of War and the Secretary of the Navy, respectively.

The Surgeon General of the Public Health Service is authorized to cooperate with state and territorial boards of health, quarantine authorities and health officers of the several states and of the District of Columbia, and he may be required on the application of not less than five of such authorities to call a conference in the interest of public health. The law authorizes the Surgeon General to extend the facilities of the Public Health Service to health officials and scientists engaged in special study.

Affiliated with the Public Health Service is the National Institute of Health, which is the successor of the Hygienic Laboratory of the service. The institute has an advisory council the National Advisory Health Council to advise the Surgeon General with respect to public health activities and to

consult with him concerning the investigations to be undertaken by the service and the methods of conducting them. This council consists of three experts detailed from the army, the navy and the Bureau of Animal Industry, by the Surgeon General of the army, the Surgeon General of the navy and the Secretary of Agriculture, respectively, the director of the National Institute of Health, ex officio, and five members, not in the regular employment of the government, appointed by the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, skilled in laboratory work in its relation to public health.

Under the provisions of law as set forth, medical officers of the United States Public Health Service are now functioning in various civil branches of the federal government, the only independent public health service of any considerable magnitude being that of the Children's Bureau in the Department of Labor. An enlargement of the independent public health activities in the Department of Labor was threatened in a resolution introduced in the House of Representatives authorizing the Secretary of Labor to appoint a committee to investigate the prevalence of silicosis and certain other diseases incident to industry. This resolution, however, gave way to another authorizing such an investigation but providing that it should be made by the Committee on Labor of the House of Representatives. At the present writing this resolution has not been adopted. A similar resolution is pending in the Senate, looking toward the making of a similar investigation by a joint committee of the Senate and the House of Representatives, which likewise is awaiting action. A congressional investigation by a committee organized as is proposed by either of the resolutions referred to would doubtless avail itself of the resources of the Public Health Service in carrying on its work.

In view of the facts set forth and of the generally disturbed state of the machinery of the executive branch of the federal government on account of its ventures during recent years into new fields and its enlargement of old fields, the time seems hardly opportune to press for legislation looking toward the establishment of a department of health, and to propose that the President be limited to a single profession in his choice of a secretary of health would be without precedent in the appointment of a member of the cabinet. It seems now better to conserve and to promote the federal medical organization that exists and to bring into it as opportunity offers the important medical work of the Children's Bureau in the Department of Labor, rather than to undertake to procure the establishment of a department of health.

#### INTEGRATION OF THE MEDICAL PROFESSION

At the session of the House of Delegates at Atlantic City in June 1935 there was referred to the Board of Trustees for study, report and recommendation the matter of the so-called integration of the medical profession. The Board has to report that there have been no developments during the past year along the line of the integration of the profession. The House of Delegates is reminded that by the term "integration of the medical profession" is meant the organization by statute of all licensed practitioners of medicine within a state into a public corporation, authorized by law to determine who is and who is not eligible for admission into the profession and to supervise the conduct of every practitioner after he has been admitted, reprimanding practitioners and suspending and revoking their licenses as circumstances dictate. All functions of the medical examining and licensing boards of the states at the time of integration would be taken over by the integrated agency.

No adequate plan has been proposed whereby all persons engaged in the practice of the healing art, nonsectarian and cult practitioners alike might be brought into a single effective integrated agency and compelled to adhere to proper standards. Your Board of Trustees is not satisfied that the integration of the medical profession alone, without the integration of all cult practitioners into the same body would effect any good purpose or any advantage to the medical profession or to the public, and the Board knows of no way in which cult practitioners could be incorporated in any effective regulatory body on any terms that they would be likely to accept. To propose a plan of integration that would provide for the regulation of cult practice along rational lines would only arouse antagonism and bring into

activity their combined political resources and probably prevent the adoption of the plan. The Board does not believe that it would be advisable in the present state of affairs to advise state associations to undertake such contests. In some states they may be advisable. Your Board of Trustees recommends, therefore, that the matter of integration be kept in abeyance, for further study and for action if circumstances arise, except as in particular states local conditions may indicate a different course.

#### FREE CHOICE OF PHYSICIAN

The House of Delegates, at its special session in Chicago in February 1935, referred to the Bureau of Legal Medicine and Legislation a resolution offered by Dr. John W. Ames, Colorado, instructing the "appropriate officers and the legislative committee" of the Association to bring to the attention of the President of the United States and his advisers a request that proper steps be taken to provide for employees on federal projects free choice of physician. This matter must be considered in the light of the status of such projects that is according as they are being carried on directly by the federal government through its own employees or are being carried on through contracts.

If a federal project is being executed by employees of the federal government, then, under the United States Employees' Compensation Act of 1916, as amended in event of disability incurred in the line of duty, the injured employee if he is entitled to medical and hospital services, must be treated by a medical officer of the United States government and in a United States government hospital, if treatment can be so provided. Only in the event that it cannot be so provided may an injured employee be treated by other physicians and in other hospitals, and then only by physicians and hospitals approved or recognized by the United States Employees' Compensation Commission.

If public works are being carried on by the federal government under contracts and through contractors, the matter of providing medical and hospital care for injured employees devolves on the contractor not on the federal government. Under such circumstances it is regulated by the workmen's compensation act of the state in which the contractor's activities are carried on and the question whether the disabled employee has or has not the right to choose his own physician depends on the law of that state.

Strangely enough labor, which has been insisting on its rights with respect to so many things, seems to have been willing and to be willing to submit to the deprivation of what might almost be called a natural right, namely, the right to determine who shall and who shall not treat a workman when he is injured in the course of his employment. In view of that fact in view also of the state of flux in which the activities of the federal government have been carried on during recent years and are now being carried on and in view of the nature and extent of the sentiment and pressure for the enactment of medical legislation inimical to the best interests of the people, as well as of the medical profession, such as health insurance legislation it seems to be inopportune now to enter on a contest for the establishment of the right of the disabled employee of the federal government to choose his own physician.

#### COOPERATION WITH STATE AND COUNTY ASSOCIATIONS

The Bureau of Legal Medicine and Legislation has received the active support and cooperation of the several state and county medical societies affiliated with the American Medical Association and of many individual members of the organization. It has endeavored to render efficient service to all of them so far as its resources would permit. The result—flattering if at times inconvenient—has been constantly increasing demands on the Bureau. It must be recognized however that the Bureau cannot undertake to furnish legal advice to individual members of the Association concerning their personal legal problems. If it did so the Association might readily be charged with being a corporation engaged in the practice of law and the staff of the Bureau of Legal Medicine and Legislation would be open to the charge of aiding and abetting in the unlawful practice of law and of unethical practice. It would be far better for every state and every county association to employ its own legal adviser referring to the Bureau of Legal Medicine and Legisla-

tion, preferably through counsel, the problems in which the Bureau may be of service. State and county associations, too might well undertake to answer directly many of the questions that are propounded by their members to the Bureau of Legal Medicine and Legislation, for by doing so they would better impress on their members the value of the service rendered by the state and county association. Possibly it would be well for the Bureau of Legal Medicine and Legislation to conduct its correspondence with persons residing in any given state only through the office of the state medical association. In that way it would be relieved of much of its detail work and have more time for the study of the larger problems of the profession.

#### Summary

**1 Social Security Act**—*The Social Security Act is now law. Until it has been declared unconstitutional by the courts or repealed by Congress, physicians should cooperate in good faith to carry it into effect. The act does not refer to health insurance. It does authorize the Social Security Board to investigate and report concerning social insurance, and under this authority the board can investigate and report on health insurance. There is, however, no evidence of any immediate intention to do so.*

**2 Federal Food and Drugs Legislation**—*Legislation relating to food, drugs, devices and cosmetics has developed to a stage at which one bill, the so-called Copeland bill, S 5, has passed the Senate and is pending in the House of Representatives, before its Committee on Interstate and Foreign Commerce. On the whole the bill passed by the Senate gives no promise of protection to the people more effective than that afforded by the Food and Drugs Act of 1906, which this bill is intended to supplant. The provisions of the pending bill with reference to drugs are distinctly weaker than are those now in force. An effort is being made to bring about a revision or rewriting of this bill so as to make it accomplish the purpose for which it is intended.*

**3 Medical Service for Works Progress Administration Employees**—*Under the Emergency Relief Appropriation Act of 1935, the federal government has undertaken to provide work for unemployed persons in necessitous circumstances who are physically and mentally capable of working. It has turned back to the states all unemployed persons in such circumstances who are physically or mentally unfit for work. Under the Works Progress Administration, employable persons are being employed in large numbers but at wages apparently insufficient to enable them to provide themselves and their dependents with the necessities of life including medical and hospital service, and the Works Progress Administration provides medical and hospital service only for traumatic injury in the line of duty. The result is that employees of the Works Progress Administration are often dependent on their respective states and the political units of such states and on private charity, including the charity of physicians for medical and hospital service. Until the administration pays more liberal wages there will be no relief from this situation, and physicians in accordance with the best traditions of the profession, must see that no deserving person suffers unnecessarily for lack of medical and hospital service. Medical and hospital service for unemployable persons rests in any case primarily on the state and its political subdivisions with which physicians must cooperate to work out the most effective methods of providing medical and hospital service with justice to the beneficiaries, the medical profession and the public.*

**4 Medical Service for Wards of the Rural Resettlement Administration**—*In the Rural Resettlement Administration a condition exists similar to that described as existing under the Works Progress Administration. Persons located on rural resettlement projects seem to be so limited in income as to be unable to provide medical and hospital services for themselves and their dependents. Apparently they must depend on the states, the political subdivisions of the states, and the local medical profession for medical and hospital aid, gratis or at prices*

within their reach, even while they are endeavoring to establish themselves on these federal projects, with the aid of the federal government

**5 Medical Units in Reserve Officers' Training Corps**—Medical units in the Reserve Officers' Training Corps will be reestablished if the War Department appropriation bill is accepted by the House of Representatives in the form in which it has passed the Senate

**6 Industrial Medicine in Department of Labor**—The proposed authorization of the Secretary of Labor to appoint a board to investigate the health conditions of workers employed in the construction and maintenance of public utilities, notwithstanding the effective work of the bureau of the Public Health Service in the field of industrial medicine, has now assumed the form of a proposed investigation of the subject, either by a committee of the House of Representatives or a joint committee of the Senate and the House of Representatives. The matter is now pending in both houses

**7 Reallocation of Federal Bureau of Narcotics**—The Federal Bureau of Narcotics will become a unit in a newly created Secret Service Division of the Treasury Department, if pending legislation is enacted. It will, however, retain by statute the function of supervising the legitimate traffic in narcotic drugs and certain other functions having to do with such drugs from other than criminal standpoints. The fear expressed by some that this reallocation of the Bureau of Narcotics would lead to an objectionable surveillance of physicians by secret service officials is not shared by the Board of Trustees

**8 Pensions for Contract Surgeons, Spanish-American War**—No progress has been made toward procuring for contract surgeons of the Spanish-American War pensions for disability due to age, similar to the pensions already provided for contract nurses who served in that war. Such contract surgeons, unfortunately not organized, seem to be unable to plead their own cause effectively and efforts to arouse an interest in this matter on the part of the committee of Congress before which it properly comes have proved unavailing

**9 Legislation Pertaining to Contraception**—Bills are pending in Congress to legalize the dissemination of information, preparations and devices to facilitate the prevention of conception. Other pending bills are designed to facilitate the prosecution of persons who send by mail indecent and obscene articles and contraceptive information, devices and preparations. The Association has taken no part in the activities that have been carried on for the promotion or for the defeat of such legislation

**10 Hospitalization and Medical Services for Veterans**—Enacted legislation provides for an increase in the number of beds for veterans of the World War, generally for veterans suffering from neuropsychiatric and tuberculous diseases. The program contemplates construction during the next five years to provide for 2,276 beds for general and surgical cases at existing hospitals. Three pending bills propose to provide additional hospital facilities

**11 State Health Insurance**—In seven states, bills were proposed looking toward the establishment of compulsory systems of state health insurance, but none have been enacted. Most of these bills have been patterned after the so-called Epstein bill

**12 Uniform Narcotic Drug Act**—The uniform narcotic drug act approved by the American Medical Association was adopted in 1935 in nineteen states with or without modification. It is now in force in twenty-nine states. There is a tendency to make such legislation applicable to cannabis and to include in it provisions for the commitment of addicts, which do not appear in the bill as originally drafted. Unfortunately there seems to be a tendency, too, to weaken the provisions of the bill particularly with reference to the sale of so-called exempt preparations, in a way that will tend to make those preparations more readily obtainable by narcotic addicts

Laws undertaking to regulate the sale and distribution of certain hypnotic or somnifacient drugs, notably drugs

depending for their potency on barbituric acid derivatives, were enacted in seven states. Legislation of this type is now in force in fourteen states

**13 Laws Relating to Practice of Healing Art**—Medical practice acts were amended in eleven states. A basic science law was enacted in Iowa. Osteopathic practice acts were extensively amended in Iowa and New Jersey, enlarging the rights of osteopaths

A physicians' lien law was enacted in North Carolina enabling physicians to establish liens to secure payment for services rendered persons injured by accidents for which other persons are responsible

Gunshot and other wounds were made reportable to police officials by physicians treating persons so injured in Minnesota and New Hampshire

**14 Hospital Service Corporations**—The organization of hospital service corporations to provide for hospital care for their members or subscribers was authorized in Alabama, California, Illinois and Indiana. The purpose of these corporations is to provide hospital service when necessary for periodic payments of stated amounts, made by members or subscribers in advance of the actual need

**15 Workmen's Compensation Acts**—Workmen in New York entitled to medical service under the workmen's compensation act are authorized by a recent act passed to select their own physicians, the choice being limited, however, primarily, to physicians whose names appear on rosters prepared by the industrial commission with the cooperation of county medical societies. The industrial commissioner is authorized to establish a schedule of fees for medical services. In New York provision was made for compensation for disability due to occupational diseases of any kind. In North Carolina disability due to any one of twenty-five occupational diseases was made compensable. In West Virginia disability due to silicosis was made compensable

**16 Licensing Clinical Laboratories**—Under a recently enacted California law clinical laboratories must be licensed. In Oregon a new law requires the registration and regulation of laboratories

**17 Evidence of Blood Tests Admissible**—The introduction in court in evidence of the results of certain blood tests was authorized by statute in New York and Wisconsin

**18 Animal Experimentation**—Bills for the regulation of experiments on living animals were introduced in New York, Wisconsin and California, but none were passed. Two bills are pending in Congress proposing to prohibit experiments on living dogs in the District of Columbia

**19 United States Department of Health**—In view of certain government investigations now under way looking toward the reorganization of the executive departments and offices of the federal government, one of which has particular reference to the reorganization of the health service, it is believed to be inexpedient for the American Medical Association to seek the establishment now of a United States department of health with a cabinet officer at its head

**20 Integration of Medical Profession**—No new developments have appeared concerning the integration of the medical profession. No way has been developed for the integration of all practitioners of the healing arts in such a way as would bring the cult practitioners under rational supervision and control and unless they can be incorporated in any scheme that may be developed for integration the effectiveness of integration as a means for protecting the public from incompetent practitioners is at least doubtful. This matter may well be kept under observation

**21 Free Choice of Physician by Disabled Federal Employees**—Although employees of the federal government, including employees of the Works Progress Administration are limited in their choice of physicians and hospitals to government medical officers and hospitals or physicians and hospitals recognized and approved by the United States Employees Compensation Commission, the time does not seem opportune for agitation to procure

for such employees a broader right to choose. The federal government employees themselves seem to be uninterested in the matter.

**22 Cooperation by State and County Associations—***The Bureau of Legal Medicine and Legislation has received the active support and cooperation of state and county medical societies and individual members of the Association. It cannot, however, give legal advice to individual members of the Association concerning personal legal problems. It may be questioned whether the Bureau might not with advantage limit its reply to inquiries received from correspondents—whether the members of the Association, subscribers, hospitals or others—to such inquiries as have been directed to the proper officer or officers of state associations and forwarded through such officer or officers to the Bureau.*

#### Bureau of Medical Economics

The Bureau of Medical Economics has been under a constant stress during the past year investigating economic problems, preparing reports for distribution to the medical profession and advising physicians throughout the country concerning special medical economic problems in various states. This was especially true concerning sickness insurance. During the latter part of 1934 and the first half of 1935 approximately 182,000 reprints of the Bureau of Medical Economics pertaining to sickness insurance were circulated through medical societies and individual physicians and a considerable number were sent directly to lay persons throughout the United States; this circulation was in addition to the articles published in *THE JOURNAL* and the *BULLETIN*.

#### MEDICAL SERVICE PLANS

The report of the reference committee adopted by the House of Delegates at the special session on Feb. 15 and 16, 1935, suggested that the Board of Trustees request the Bureau of Medical Economics to study further the county medical society service plans then existing and such as might develop. This study was made and the report was presented to the House of Delegates at the Atlantic City session. With but few changes suggested by the Reference Committee on Medical Economics, the report was adopted as presented.

At the time this study was made, many county medical societies had progressed in their consideration of medical service plans no further than to make a survey of their local requirements or to study the plans about to be adopted elsewhere. For this reason it was impossible to include in the report any definite pronouncements as to the success of such plans. Experience is needed to provide answers to such questions as the costs of operation, the quality of service rendered, the applicability of the plan to the locality in which it operates, the effects on the medical profession and the way in which the plan meets the community needs. It is also desirable to know whether a medical service plan constitutes the major activity of the county medical society, supported to the exclusion of other proper interests, or whether such a plan is merely a part of a well planned program of medical society activities in which all phases of medical practice and community welfare are accorded proportionate emphasis. The opinion is offered that the study of medical service plans should be continued with the object of securing as promptly and as accurately as possible answers to these questions. A study is now in progress to show all phases of county medical society activities in certain localities in which medical service plans are operating. An attempt is being made also to determine the measure of success attained by medical service plans.

#### DISTRIBUTION OF PHYSICIANS

During the past year the Bureau's publication entitled *Distribution of Physicians in the United States* has been well received by a large number of persons and organizations interested in some phase of the distribution of physicians in this country. This is the most recent attempt to show the distribution of all the physicians enumerated in the *American Medical Directory*. The most complete previous study was made by Lewis Mayers and Leonard V. Harrison in 1924 and was published by the General Education Board under the title *The Distribution of Physicians in the United States*. The study

by Mayers and Harrison is valuable for the comparisons it affords with distribution in 1923 and some previous years, chiefly 1906.

Some of the general conclusions drawn from this study are as follows:

The population per physician appears to be increasing; in 1890, according to the best available information, the population per physician was 629, whereas in 1931 it was 785.

The number of graduates in medicine is increasing steadily; the low point was reached in 1922 with 2,500 graduates; in 1931 there were 4,735 graduates and in 1935 the number had increased to 5,101. These figures suggest that the population per physician may show a downward trend for the years since 1931.

The percentage of all physicians in active practice who in 1931 were classified as limited specialists was 16.5. The largest percentage of limited specialists in a geographic subdivision of the United States, 19.8, was found in the Pacific states. The lowest percentage, 11.9, was found in the East South Central states.

The largest number of physicians classified as limited specialists were found to be practicing in diseases of the eye, ear, nose and throat. The smallest number were found in bacteriology.

A comparison of the distribution of physicians according to size of community for 1931 with a similar distribution for 1906 shows that, whereas in 1906 there were 29.5 per cent of all physicians practicing in communities of less than 1,000 population, in 1931 there were only 13.4 per cent of all physicians in communities of this size. The same tables show that in communities with a population of 100,000 and over there were 29.8 per cent of physicians in 1906 and 46.2 per cent in 1931. These figures seem to indicate a very appreciable drift of physicians away from the rural and small communities to the larger urban and metropolitan centers.

It appears that the largest percentage of physicians practicing in communities with a population of 10,000 and less are between the ages of 30 and 39 years.

The distribution of physicians by states according to population per physician compared with the average income in dollars per person indicates that as the average income per person decreases the number of persons per physician increases. These data seem to confirm the general observation that the number of physicians which can be supported by a community depends, to a large extent, on the amount of individual spendable income.

Neither of these studies constitutes a complete study of the distribution of physicians. It is proposed to assemble additional data to show the number and distribution of women physicians, Negro physicians and irregular practitioners, the distribution of physicians according to years in practice by size of community and by specialty, and the number of physicians serving in full time positions.

#### MEDICAL RELATIONS UNDER WORKMEN'S COMPENSATION

During 1935 there were several successful efforts on the part of medical societies to effect better relationships between the medical profession and various bodies dealing with or enforcing workmen's compensation statutes and regulations. In several states, statutes and regulations were changed. In 1933 the Bureau of Medical Economics published a report entitled *Medical Relations under Workmen's Compensation*. This publication has had wide distribution and use. When it became necessary to print a second edition of this report a chapter was added giving briefly the changes in workmen's compensation during 1933 and 1934 and the first half of 1935. It is proposed to revise this report periodically to include the current changes in workmen's compensation legislation and regulations.

#### CARE OF THE INDIGENT SICK

The report on the Care of the Indigent Sick was prepared and published late in 1934. In this report an attempt was made to trace the historical origin of some of the present-day problems in the medical care of the indigent and to call attention to some of the standards that should be used to determine the receipt of free medical care. At this time the federal government had assumed some responsibility in the care of the indigent through the Federal Emergency Relief Administration. In the first edition of the publication *Care of the Indigent*

Sick" the most accurate information obtainable was included to show the way in which the various states had developed plans based on federal rules and regulations to meet this emergency in cooperation with the Federal Emergency Relief Administration.

When it became necessary to issue a second edition of "Care of the Indigent Sick," the emergency medical relief measures had been complicated by rules pertaining to the Civil Works Administration, the Public Works Administration and later the Works Progress Administration. Since medical societies had not had sufficient time to develop plans or even to determine courses of action based on regulations promulgated by these later federal agencies, it was thought unwise to include in the second edition any description of medical services under the new regulations but to review them at some later period when more definite data might be obtainable.

#### UNIVERSITY AND COLLEGE STUDENT HEALTH SERVICES

Among the reports of the Committee on the Costs of Medical Care is a study of "University Student Health Services" in which the statement is made that facts are revealed which "have considerable significance in indicating certain important advantages to be gained by organization and by periodic payments for the essential elements in medical care."

A study of student health services may be divided into two phases: one an evaluation of the quality and effectiveness of service rendered and the extent to which the service meets the needs of the students, and the other a statistical study of costs, morbidity among students, extent to which students utilize the facilities of the student health service, number and classification of persons covered by the health service arrangements, the number and type of personnel engaged in providing the services, and many other important items.

It is stated in the committee's study that no attempt has been made to determine the effectiveness of the service or to ascertain the extent to which the medical care provided meets the needs of the local student body. The number of universities studied (only six universities from several hundred universities and colleges) can scarcely be accepted as sufficient to provide an amount of data from which to draw statistically reliable conclusions for student health services throughout the United States. The study may therefore be considered as merely a descriptive analysis of the health services of six universities varying in size from about 3,000 to slightly over 10,000 student population.

The Board of Trustees in 1934 requested the Bureau of Medical Economics to make a study of student health services in all the leading colleges of the United States. Accordingly the study was begun by compiling a list of colleges that maintain a student health service. The list of colleges and universities comprises institutions accredited by the Association of American Universities, member institutions of the American Student Health Association and colleges for Negroes approved by a special committee of the Division of Higher Education of the United States Bureau of Education. To these colleges and universities a schedule was sent requesting information desired for the study. Some universities were visited to observe the methods used in the operation of their health services, the type and amount of equipment, and to gather an impression of the atmosphere surrounding the student health service department. Some universities sent well prepared analyses of their services which have been very helpful.

The report of the Bureau is based on data taken from the schedules returned by 238 colleges and universities and seventeen colleges for Negroes. The subject matter of the report is arranged according to the following main headings:

##### Introduction

##### The Evolution of Student Health Services

##### The Health Program Under Student Health Services

##### The Status of Student Health Services

##### Health Services and the Medical Field

##### Summary and Evaluation

From the data available several features of student health service are apparent. (1) There has been, during the last decade, a steady increase in the number of institutions maintaining student health services. (2) there appears to be a

surprisingly large amount of capital invested in buildings and equipment devoted to health and medical services for students, (3) there seems to be a general tendency to develop health and medical services in colleges and universities on an institutional rather than a geographic basis, (4) there seems to be evidence to show that the health instruction of students—presumably the primary function of a student health service—has not always been done as well as might be expected of institutions of higher learning, (5) it is impossible to find any universally accepted measure of performance or accomplishment by which the programs and benefits of student health services may be judged, (6) it appears that a very large percentage of universities and colleges are actually engaged in the practice of medicine in varying degrees, and (7) the number of instances in which a practical cooperative arrangement has been effected between the college and the county medical society of the college community for the medical care of students seems to be lamentably small.

Each service seems to have been specially developed to satisfy the ideas and desires of those who formulate and direct the policies of each separate institution. Neither the organization nor the conduct of student health services seems to have followed any generally accepted principles or objectives except to provide students with some sort of health instruction and variable forms and degrees of medical advice and care. In some instances both the health instruction and the medical care seem to have been creditably done; in others the methods and results in both these phases of student health service appear to be questionable.

One of the most serious tendencies in student health service is the inclination to adopt the institutional method of providing medical care. If this method were to be generally accepted and adopted it would lead to almost endless confusion. On this basis it is conceivable that every social, industrial, commercial, religious, fraternal, cultural or other form of institution would be justified in developing its own special medical service. Such a method would bring with it an almost endless amount of duplication, redundancy, omission and confusion. Continuous intimate personal relations between physicians and their patients would be extremely difficult if not quite impossible to maintain. Change of employment or institutional membership would mean also a change of personal medical adviser. Institutions and not the medical profession would control and direct medical practice.

College and university students represent a select group of the population which, for several reasons, should show a low morbidity rate. Moreover, most students are associated with institutions of higher learning for only a relatively short period of their lives. One of the primary purposes for which students attend educational institutions is to acquire information. In this respect colleges and universities are entirely justified and may well be encouraged in providing facilities for health instruction. Medical advice and care are by no means synonymous with health instruction. Students are subject to many of the same forces that affect the general population and they often need medical care. It is suggested therefore from this study of available data that in the interest of good public policy as well as of good medicine, an effort be made to establish some fundamental principles that can be accepted and applied in the correct provision of medical care to this section of the population.

#### GROUP HOSPITALIZATION

The subject of group hospitalization has been commanding attention since late in 1930. While commonly thought of as any plan under which a number or group of individuals make periodic payments to a fund to enable each individual to receive hospital care when needed, it is evident that this concept must be more narrowly defined because under it can be included industrial health services, mutual benefit associations, trade union plans, university health services, fraternal or lodge plans and any type of plan under which patients are hospitalized other than in the traditional fee per patient manner. A clarified definition is not a basis for conclusions but it does point out a course of investigation.

Group hospitalization by its very name connotes that the relationship is one of direct arrangements between hospitals and groups and that hospital care alone is the service bargained for. Group hospitalization then, is a plan whereby a hospital



or an association of hospitals contracts with classified groups of people to furnish hospital care when needed in return for the periodic payment or prepayment of a stipulated sum by each member of the group. A bona fide group hospitalization plan, as defined, should exclude all professional or medical services of physicians or surgeons, pathologists, roentgenologists, anesthetists and special nurses. The control of the service provisions and membership funds should be in the hands of those who can render the service, namely, the hospitals or an association properly representative of the hospitals and the medical profession.

The first type of plan was that of a single hospital which offered specified services to groups of persons, without utilizing a sales agency, at lower rates than individuals could independently purchase similar services. The prepayment or group budgeting idea gained favor, and plans developed in many sections of the United States.

Commercial organizations, whose interest in making hospital service more available was secondary to the profits they envisioned, began promoting plans and organized and conducted membership drives. The abuses caused by commercialization and the prospective defects of group hospitalization plans were called to the attention of the medical profession, hospital administrators and the public in the report on "New Forms of Medical Practice," an outline of schemes that were being utilized to "organize" and institutionalize the practice of medicine. These defects were later emphasized by the studies entitled "Prepayment Plans for Hospital Care" and "Group Hospitalization Contracts Are Insurance Contracts," which appeared in *THE JOURNAL* during 1933.

The realization of some of the possible untoward effects of unsound and commercial plans, and the recognition that group hospitalization contracts were insurance contracts in the majority of the states, caused some modification of the utopian claims for the plan.

The nature of the contract and the type of administrative organization for hospitalization plans are of vital concern to the medical profession. The medical profession is opposed to any plan that will destroy the basic features of medical service or will permit hospitals to enter the practice of medicine. If hospitals are permitted to include medical care in their contracts for hospital service, the precedent is set for institutionalized contract medical practice with all its destructive effects on the art and science of medicine. In at least twenty communities, county or state medical societies are active in the organization and control, or have given approval after close observation, of the administration of the hospitalization plans. In many other localities the plans have at least been studied and some action taken by county or state medical societies.

The protagonists of group hospitalization have created the erroneous impression that the medical profession opposes all group hospitalization plans. Those plans offered by community-wide, noncommercial associations of hospitals, designed to offer hospital facilities to low-income groups in a manner and at a cost commensurate with knowledge gained from experience and sound advice, which have a representation of the local medical profession in the administration to assure the exclusion of features objectionable to the practice of medicine, have encountered no serious obstruction on the part of medical societies. The most encouraging progress in group hospitalization has been made by these plans.

The theory of the insurance principle in the provision of hospital service appears to be reasonable but the application of this principle introduces many inherent dangers that should not be overlooked. The determination of actuarially sound bases for premium rates, the careful selection of risks and the wise handling of funds are insurance duties that cannot be lightly undertaken by the inexperienced. The fixation of charges for all hospitalization at a level too low to be compatible with good hospital service, the solicitation of patients and the competition between hospitals with different plans, the diversion of funds to sales agencies or to profit taking corporations, the placing of undue emphasis on hospitalization and the possibility of keeping active some undesirable institutions are but a few of the objectionable features in addition to the more important dangerous tendencies that have been mentioned.

Unfortunately, there are no reliable indexes available by which to judge the value of group hospitalization. There seem to be no accurate and dependable data available concerning the cumulative experience of this new method of providing hospital facilities for the sick.

The Bureau of Medical Economics, through the Council on Medical Education and Hospitals, has instituted a survey in an attempt to analyze the experiences of group hospitalization plans and to prepare a report that may be useful to the administrators of present plans and to those who desire to organize new plans. On Jan. 1, 1936, the Bureau had compiled from various sources a list of group hospitalization plans that either had been proposed or were in operation or had been discontinued after a period of operation. A schedule was sent to each of these organizations requesting specific information as to the present status of the plan.

At the present time sixty-six schedules, approximately 46 per cent of the total sent, have been returned. The sixty-six schedules returned indicate that twenty-three plans are in operation, five have been consolidated with existing plans, four are still proposed or under consideration, four were once in operation but are now discontinued, and thirty are not now in existence, either having never existed or the schedule was returned marked "not in directory" or "moved, left no address."

Information secured from various sources seems to indicate that there were 144 plans, with 512 associated hospitals, located in 107 communities throughout thirty-two states and the District of Columbia. Definite information has been received from sixty-six plans of the remaining seventy-eight plans that have not returned their questionnaire. The Bureau has reasonably definite information concerning only thirty-one. It is believed that the remainder will prove to be either nonexistent or inactive.

Recent information has brought nineteen additional plans to our attention, seventeen are proposed and two are in operation. These plans have had no experience and were not included in the survey.

The returns to date suggest that the importance of group hospitalization plans has been overstated when measured by the actual number of plans in operation and the number of members enrolled. The returned reports also suggest that there has been only a semblance of an effort to keep records of experience or to prepare accurate financial statements, and it has been difficult to find sufficient actuarial data on which to base sound premium rates. Although group hospitalization properly organized and operated may in some communities serve to supplement existing medical facilities, the plan must not be considered a panacea for the medical economic ills of a community, and extreme caution must be exercised if many of the evils and destructive elements that have attended other new forms of medical practice are to be avoided in these undertakings. When all plans that have had any experience return their schedules, a report of the results will be completed.

#### RELATION OF MEDICAL ETHICS AND MEDICAL ECONOMICS

Practically all economic transactions involve an ethical implication good or bad. Many of the principles of medical ethics carry some economic implication.

Since ethics and economics seem to have a definite relationship, an endeavor has been made to set forth these relations in a report entitled "Economics and the Ethics of Medicine."

This report begins with a discussion of the ethics and economics of industry, business and commerce. This chapter is followed by an analysis of the Oath of Hippocrates, with some reference to the similarity of the wording of the oath in the Greek, Arabic, Latin and East Indian. The development of medical ethics is then traced in modern times. A chapter is devoted to the medical group and the influence which ethical principles have exercised in cementing and maintaining physicians in an organized group.

The remainder of the report is devoted to an examination of the economic implications in the Principles of Ethics of the American Medical Association.

#### DEBATE ON STATE MEDICINE

In March 1935 the National University Extension Association Debate Committee announced the national debate subject for 1935-1936. The proposition is *Resolved*, That the several states



should enact legislation providing for a system of complete medical service available to all citizens at public expense. It is estimated that this proposition will be debated by more than 100,000 students in high schools, colleges and universities throughout the United States during the present school year. The debaters will be heard by large and small audiences, in auditoriums and over the radio. Already a considerable amount of public interest has been stimulated over this activity.

In May 1935 Mr Bower Aly, editor of the Debate Handbook of the National University Extension Association Debate Committee, requested that an article supporting the negative of the debate proposition be prepared for the handbook. At the same time Mr Aly requested that publications of the Bureau of Medical Economics be made available to the members of debating teams.

An article entitled "The Medical Profession Is the Only Competent Judge of Medical Services" was prepared by the Bureau and appears on pages 113-136 of volume I of the Ninth Annual Debate Handbook, entitled "Socialized Medicine." Publications of the Bureau of Medical Economics were divided into two groups for members of debating teams. One group consisting of four reprints—Some Defects in Insurance Propaganda, A Critical Analysis of Sickness Insurance, Sickness Insurance Not the Remedy, and Sickness Insurance Catechism—was offered for free distribution to individual debaters. The other group, consisting of fourteen reprints listed as follows, was offered as a library package to be lent to debaters by the debate coach of the school.

An Introduction to Medical Economics  
Handbook of Sickness Insurance  
State Medicine and the Cost of Medical Care  
Collecting Medical Fees  
Contract Practice  
Income from Medical Practice (with supplement)  
Some Phases of Contract Practice  
Medical Relations Under Workmen's Compensation

Group Practice  
New Forms of Medical Practice  
Health Insurance in England and Medical Society Plans in the United States  
Prepayment Plans for Hospital Care  
Group Hospitalization Contracts  
Distribution of Physicians in the United States  
Care of the Indigent

Mr Aly designated thirty-two points of distribution among the educational institutions of thirty states. Subsequently several state medical societies assisted in the distribution of the debate material. Several state medical societies have prepared an outline of arguments against state medicine.

The National University Extension Debate Committee arranged a radio debate on the national debate proposition. This was presented over the Red Network of the National Broadcasting Company, Nov 12, 1935. The speakers for the affirmative were Mr William T Foster and Mr Bower Aly, and for the negative Dr Morris Fishbein and Dr R G Leland. This debate was taken on phonograph records made at the time and is now available in reprint form.

Between the dates of March 1935 and Jan 1, 1936, approximately 134,000 reprints of the Bureau of Medical Economics were distributed for the use of students on debate teams. Only a comparatively small number of debates were held up to Jan 1, 1936. The reports that have been received indicate that the negative teams have won in most instances.

A considerable number of county medical societies and individual physicians have requested reprints of the Bureau and other statistical data on state medicine and have used this material in assisting members of debate teams in preparing their negative arguments.

#### Summary

*The activities of the Bureau of Medical Economics for the year 1935 may be summarized under the following headings:*

**Sickness Insurance** Continued study of the subject collection of reports of foreign systems, statistical data and comparison of vital statistics under these systems with nearly comparable statistics in the United States where possible, preparation of statements setting forth the characteristics of sickness insurance and distribution of reports and specially prepared articles on sickness insurance.

**Medical Service Plans** Continued study of county medical society plans, criticism of proposed plans, collection of data and descriptive material to show well planned and balanced county medical society programs

and the relative emphasis given to medical service plans, an effort to determine the measure of success attained by medical service plans in serving sick people.

**Distribution of Physicians in the United States** A study with fifty-four tables and fifteen charts to show, in part, the distribution of physicians according to population, type of practice, age and geographic location of the physicians listed in the 1931 American Medical Directory.

**Medical Relations Under Workmen's Compensation** Revision of the original report on this subject to include the changes in workmen's compensation laws and relations that were made in 1933, 1934 and the first half of 1935.

**Care of the Indigent Sick** Comment and suggestions offered on plans for the medical care of the indigent proposed by county and state medical societies.

**University and College Student Health Service** Completion of a study of University and College Student Health Service requested by the Board of Trustees in 1934 with summary and conclusions.

**Group Hospitalization** Attempt to define the term "group hospitalization", compilation of list of group hospitalization organizations, collection of data pertaining to the experience of this new method of providing hospital facilities for the sick, criticism of proposed plans and advice concerning the attitude of the American Medical Association toward such plans.

**Relation of Medical Ethics and Medical Economics** A report nearly completed which endeavors to show the economic implications in the Principles of Medical Ethics and a discussion of the ethical applications of the principles of medical economics.

**Debate on State Medicine** Preparation of special article for the official handbook of the National University Extension Association Debate Committee, distribution of publications of the Bureau of Medical Economics to medical societies, individual physicians, student debating teams university extension departments and high school, college and public libraries.

**General Travel** forty visits to thirty-three cities in eighteen states and the District of Columbia covering a total distance of 38,610 miles. Speaking engagements and conferences seventy-eight addresses and conferences with an attendance of 7,900, mostly physicians. Correspondence 3,263 communications.

#### Proposed Program

1 Continued study of state managed medical systems of foreign countries and preparation of data and reports for the use of the medical profession.

2 A study of medical service plans to determine, if possible, the measure of success they have attained in making medical services more easily available to the people of low incomes.

3 Compilation of additional data on distribution of physicians in the United States and in foreign countries.

4 Preparation of new material to be used in revisions of the publications "Medical Relations Under Workmen's Compensation" and "Care of the Indigent Sick."

5 Completion of study now in progress on group hospitalization.

6 Revision of publication "Collecting Medical Fees."

7 A study of rural medical facilities.

8 Cooperation with Council on Medical Education and Hospitals in furnishing material and suggestions to medical schools on the instruction of medical students in medical economics.

#### Bureau of Health and Public Instruction

Because of the increased demands made on the Bureau of Health and Public Instruction, it was necessary to increase the personnel of the Bureau through the employment of an assistant director and an additional stenographer. Dr P A Teschner

a member of the State Medical Society of Wisconsin, assumed his duties as assistant director, Dec 16, 1935. He has had much experience in the field of health education.

#### RADIO PROGRAM

A very radical change has been made in the character of the radio program which was instituted over the Blue Network of the National Broadcasting Company in 1933 in that the program now consists of radio dramatizations, broadcast weekly over the Red Network. Subjects of popular interest have been selected for this program including automobile accidents, household emergencies, hunting accidents, animal disease in man, asphyxiation, burns and others which have lent themselves to dramatization and about which the public needs to be informed. These programs have been well received throughout the United States, and a number of commendatory expressions concerning them have come from England and other countries, where the programs have been heard by means of short-wave reception. No effort has been spared by the National Broadcasting Company in putting this program on the air in a first class manner. Officers and members of the official personnel of the National Broadcasting Company have taken enthusiastic interest and have given the greatest possible assistance to insure the success of the program. The Board of Trustees and the Bureau of Health and Public Instruction offer an expression of grateful appreciation to the major officers of the National Broadcasting Company who have exhibited a personal interest, and to Miss Judith Waller, educational director, to Mr. Lawrence Holcomb and Mr. Theodore Scherdmann of the production department, to Mr. Charles Lyon, the announcer, and to Mr. William J. Murphy, who has prepared the scripts, which have been notable for human interest, dramatic intensity and scientific accuracy. All the talks in connection with the dramatizations have been delivered by Dr. Morris Fishbein, editor, Dr. W. W. Bauer, director of the Bureau of Health and Public Instruction, and Dr. R. G. Leland, director of the Bureau of Medical Economics.

A radio library for the use of local medical societies is being maintained and now contains 766 talks. During the year, 4,780 items from this radio library were distributed for the use of fifty-four component county medical societies and fourteen constituent state medical associations.

#### CORRESPONDENCE AND QUESTIONS AND ANSWERS

The direct correspondence of the Bureau has increased by more than 60 per cent within three years. Approximately 11,000 letters were written during the year 1935.

The question and answer correspondence showed an increase during the year of approximately 11 per cent. In certain instances queries and answers are published in *HYGEIA*, but there is a constant diminution in the percentage of the number so published.

#### COOPERATION WITH STATE AND COUNTY MEDICAL SOCIETIES

In an effort to be helpful to component county medical societies, the Bureau has maintained the fullest possible contact with the officers of these organizations. Social security legislation has apparently been the subject of greatest interest to county and state medical societies. With members of the Board of Trustees and with the director of the Bureau of Medical Economics, the director of the Bureau of Health and Public Instruction attended a conference of state and territorial health officers with the United States Public Health Service and the Children's Bureau held in Washington, D. C., when the implications of the social security bill then pending were fully discussed. The sessions of the Conference of State and Provincial Health Authorities in Atlantic City were attended by the chairman of the Board of Trustees, the director of this bureau and the director of the Bureau of Medical Economics. Information obtained at this conference has been made available to the medical profession through correspondence through articles published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* and through personal conferences.

The director of the Bureau was authorized by the Board of Trustees to accept membership on the General Advisory Committee to the United States Children's Bureau and attended a meeting of that committee and of its subcommittee on maternal and child health services in Washington in December.

#### COOPERATION WITH GOVERNMENT AGENCIES AND WITH LAY ORGANIZATIONS

The director of the Bureau of Health and Public Instruction and Dr. Arthur J. Cramp, formerly director of the Bureau of Investigation, attended a hearing before the Federal Communications Commission and presented the points of view of the American Medical Association with respect to radio advertising and freedom of expression on the air.

By order of the Board of Trustees, the director of the Bureau continues to serve as a member of advisory committees of the following organizations: National Congress of Parents and Teachers, General Federation of Women's Clubs, Joint Committee on Health Problems in Education, and the National Committee for Boys and Girls Club Work. The director of the Bureau was also authorized by the Board of Trustees to participate in the official activities of the American Public Health Association and, at the 1935 annual meeting of that organization in Milwaukee, was elected chairman of the Section on Health Education.

#### FIELD WORK

During the year 1935 the director of the Bureau delivered eighty-six addresses and attended twenty conferences and meetings. The audiences addressed included 518 physicians in the medical society groups, approximately 20,000 persons in lay groups and about 3,000 persons in groups including both physicians and nonmedical listeners. A number of appearances were made before high school audiences. One hundred and eight days were spent in the field.

#### PAMPHLETS AND REPRINTS

Eight of the pamphlets prepared under the auspices of the Bureau of Health and Public Instruction were revised and reprinted during the year, eight pamphlets were discontinued and fourteen new pamphlets were added to the catalogue.

#### OTHER ACTIVITIES

The Bureau of Health and Public Instruction has cooperated as fully as possible with the editorial department and has prepared material for *HYGEIA* and the *AMERICAN MEDICAL ASSOCIATION BULLETIN*. Nine articles prepared by the Bureau were published elsewhere than in the Association's periodicals. The Bureau has also cooperated with the Bureau of Exhibits in connection with service to local and state medical societies and to other important groups.

#### Summary

*Dr. P. A. Teschner of Milwaukee was appointed assistant director of the Bureau of Health and Public Instruction, Dec 16, 1935.*

*There has been considerable expansion in the scope of the Bureau's work including greatly increased correspondence and more extensive activities in the field.*

*The Association's radio program, under the immediate direction of this bureau, has been received with great favor throughout the United States and has been commended in several foreign countries.*

*The Bureau has attempted to maintain helpful contact with important national organizations and official agencies of the federal government.*

*The director is serving as a member of advisory committees of several important organizations of national scope.*

#### Bureau of Investigation

Dr. Arthur J. Cramp, director of the Bureau of Investigation after nearly thirty years of service characterized by the utmost devotion, loyalty and efficiency, was compelled to retire Nov. 30, 1935, because of the condition of his health. The department now known as the Bureau of Investigation and formerly called the Propaganda for Reform Department was developed by Dr. Cramp who gave himself entirely to its work in the interests of scientific medicine and for the protection of the public. With no thought of self and with the utmost devotion to the cause he so faithfully served, Dr. Cramp fought fearlessly for the establishment of truth and for the destruction of fraud and quackery. The Board of Trustees desires to acknowledge its most sincere appreciation of the fine service.

rendered by Dr Cramp and to express the hope that he will enjoy a long period of well earned rest

Dr Frank J Clancy, a member of the Washington State Medical Association, was appointed director of the Bureau of Investigation and assumed his duties in that capacity, Feb 1, 1936

#### WORK OF THE BUREAU

The work of the Bureau of Investigation was conducted along the same well established lines that have been followed in previous years. A most important part of this work has been concerned with direct inquiries received from physicians and laymen. From ten to twelve thousand individual communications are answered by this bureau each year. The number of inquiries received from laymen is constantly increasing.

It is gratifying to note the increasing number of communications received from publishers of lay periodicals and from managers of radio broadcasting stations submitting inquiries with regard to advertising material that has been offered for publication or for broadcasting. It is also gratifying to the Board of Trustees to report an increasing number of inquiries received by the Bureau of Investigation from teachers and from the members of classes in educational institutions, indicating a growing interest in the study of the nostrum evil and of quackery.

The Bureau has continued its efforts to give such assistance as it could offer to various agencies of the federal government, including the Federal Trade Commission, the Food and Drug Administration, the Federal Communications Commission, the Postoffice Department and the Federal Bureau of Investigation. The Bureau has continued to cooperate as fully as possible with better business bureaus throughout the country.

Because of the ill health of the director of the Bureau, the amount of field work in 1935 was greatly curtailed.

Lantern slides, film strips with projector, and educational posters prepared by the Bureau have been made available to physicians and educators, and the number of requests for the use of such material has increased appreciably. The demand for the pamphlets prepared and issued by the Bureau of Investigation was strongly maintained during the year covered by this report. A third volume of Nostrums and Quackery is now in process of preparation under the immediate direction of Dr Arthur J Cramp.

#### Summary

*Dr Arthur J Cramp, director of the Bureau of Investigation, after nearly thirty years of continuous service, retired, Nov 30, 1935, because of ill health. Dr Frank J Clancy of Seattle, Washington, was made director of the Bureau, Feb 1, 1936.*

*The work of the Bureau of Investigation has been continued in increasing amount along the well established lines followed in previous years. There seems to be an increasing interest on the part of the general public in the study of nostrums and quackery, especially in educational institutions.*

#### Bureau of Exhibits

##### THE ANNUAL SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Atlantic City session was characterized not only by its size, which was the greatest in the history of the Association, but by the wide range of topics covered and the excellence of presentation by the 466 individuals who contributed material. There were 214 different exhibits, of which eighteen came from Canada. At the Cleveland session in 1934 there were 167 exhibits, while at Milwaukee in 1933 there were 120 exhibits. In spite of the commodious hall available at Atlantic City nearly 30 per cent of the applications for space could not be accommodated.

There were four special exhibits subsidized by the Board of Trustees on diabetes, nutrition, prevention of asphyxial deaths, and vaccines and serums. The appreciation of the Committee on Scientific Exhibit goes to the numerous persons who are ably assisted in these exhibits.

Several of the section exhibits committees presented special features. Exhibit symposiums were conducted on cancer, syphilis, tuberculosis, and acute infections of the central nervous

system in children. Special exhibits were given on "treatment of obstetric and gynecologic hemorrhage" and on the "relation of psychiatry to the physician in general practice." Motion picture programs were shown under the auspices of five of the sections, these pictures, together with those shown in individual booths, made a total of nearly a hundred different motion pictures shown in the Scientific Exhibit.

The Committee on Awards was confronted by an unusually difficult task, on which it worked tirelessly, presenting a report which received unanimous commendation. A total of twenty-nine awards were made, of which the Canadians received four.

#### ASSOCIATION EXHIBITS

Exhibit material has been sent out from Association headquarters on ninety-two occasions during the year to meetings in twenty-nine states. This includes both medical societies and public expositions which have been approved by medical societies. There has been collected by the Association some thirty exhibits suitable for medical and other professional groups and twenty exhibits for fairs, expositions and lay groups. The demand for exhibit material bids fair to exceed the capacity of the Bureau. There is serious doubt that expansion should be made to an extent that would enable the Association to meet all demands. The facilities of the Bureau have been greatly increased, only further to stimulate demand for its service. There is a limit established by costs of material and its preparation and by costs of transportation and breakage, beyond which the Bureau can hardly go.

In several states, notably California, Ohio and Washington, the state medical association has borrowed material for a period of months, sending it from place to place as required.

Cooperating with the California Medical Association, the Bureau has installed an exhibit at the San Diego exposition.

#### THE CENTRAL SCIENTIFIC EXHIBIT

The Central Scientific Exhibit was dismantled at the headquarters building of the Association in 1934 because of lack of space. The Museum of Science and Industry in Chicago has stored the material pending such time as it can be accommodated in that building. Installation will not take place until the latter part of 1936 in all probability.

#### MOTION PICTURES

There are many hundreds of requests annually for motion pictures and lantern slides which cannot be filled by the Bureau. The few films which the Association has available are for medical audiences and are confined mostly to the field of physical therapy. The provision and handling of films for lending purposes involves relatively large expenditures. Damages and replacements are costly and, in many instances, films are rapidly outdated.

#### Summary

*The Scientific Exhibit at the Atlantic City session was the largest and most varied that has ever been made.*

*In 1935 exhibits were made on ninety-two occasions in twenty-nine states.*

*The demand for exhibit material is fast becoming greater than can be met.*

*Cooperating with the California Medical Association, the Bureau has installed an exhibit at the San Diego exposition.*

*It is not possible for the Bureau to comply with the hundreds of requests received for motion pictures, because of costs involved.*

#### Committee on Foods, 1935

At the close of 1935 the number of products standing accepted by the Committee on Foods had reached the total of 2,893. The number of pending submissions has been so great that it was decided in April at the seventh annual meeting of the Committee on Foods that new submissions be limited for a period of six months to those of special interest to physicians. This ruling was made in order that the office of the Committee might catch up with the work of considering both new and old products.

## INQUIRIES RECEIVED

The prestige of the Committee on Foods is perhaps indicated by the large number of inquiries regarding food products which are received and answered throughout the year. The tabulated summary of the number of such inquiries received and answered by the office during 1935 follows:

Physicians	232
Health officers	19
Other professional persons	101
Medical societies and hospitals	34
Government departments	18
Better business bureaus	17
Schools and colleges	148
Food manufacturers	366
General public	717

These miscellaneous inquiries regarding food and nutrition thus average better than five a day.

## RULES AND REGULATIONS OF THE COMMITTEE

During the year the Committee found it expedient to amend several rules. In the interest of physicians and for the benefit of the public the 'Rules Governing Package Label and Advertising' have been amended by the addition of a second sentence, making the subsection read:

Names of diseases shall not be used on the package label or in advertising addressed to the public except in statements regarding nutritional disorders arising from inadequacy of the diet in nutritional essentials. Symptoms of disease shall not be referred to in lay advertising. [This statement is now in press for publication in THE JOURNAL.]

To the ruling on Violations was added the following:

No food product or class of food products or advertising therefor will be accepted or if accepted will be retained if in the opinion of the Committee such acceptance is likely to be construed as an acceptance or approval of any other products or activities of a firm when such other products or activities of such firm are in conflict with the policies of the American Medical Association as set forth in the rules of the Committee on Foods or those of the Council on Pharmacy and Chemistry or of the Council on Physical Therapy. [THE JOURNAL June 1 1935 p 1999.]

The "Rules Governing Use of the Seal" were amplified slightly in the interest of clarity.

## GENERAL COMMITTEE DECISIONS

Three new General Committee Decisions were adopted during the year and published in THE JOURNAL.

Advertising Dealing with Treatment of Disease or the Nutrition of the Sick, or Recommending any Special Type of Diet. [Feb 2 1935, p 398.]

Fortification of Foods other than Dietary Staples with Vitamin D. [Feb 16, 1935 p 563.]

Fresh Compressed Yeast, Dried Yeast and Yeast Extracts are Special Purpose Foods. [This decision is now in press for publication in THE JOURNAL.]

In addition an amendment to the Decision "Vitamin E Claims for Public Advertising" (not yet published) was adopted.

## COOPERATIVE COMMITTEE ON VITAMINS

An important development during the year was the formation of the Cooperative Committee on Vitamins of the Council on Pharmacy and Chemistry and the Committee on Foods. Members of this joint committee met in Chicago in October 1935 and discussed some of the vexatious problems concerning vitamins. The work of this cooperative committee is described more fully in the report of the Council on Pharmacy and Chemistry. An important question discussed at this meeting, and a question which is being considered by the Committee on Foods at present, concerns the vitamin D fortification of milk and cereal products.

## CHANGES IN THE COMMITTEE AND THE OFFICE

It is a sad duty of the secretary to note the loss by death of the vice chairman, Dr Lafayette B Mendel in December 1935. Dr Mendel served the Committee with distinction since its beginning five years ago, and the loss of his wise counsel is most severe. No other change in the membership of the Committee occurred during 1935.

Mr Raymond Hertzog, who acted as secretary during the formative years of the Committee, terminated his connection with the Association on Dec 31, 1935. Since that time the necessary rearrangements, to coordinate the work of the office of the Committee with that of the Council on Pharmacy and Chemistry and the Council on Physical Therapy, have begun.

The present organization of the office consists of the new secretary of the Committee, Dr Franklin C Bing, who assumed

his duties Feb 1, 1936, a secretary and five office assistants. In April 1935 Dr Ruth Cowan Clouse was appointed assistant to the secretary of the Committee on Foods to fill a long felt need for a technically trained individual to aid in the constructive work of the Committee. Unfortunately, Dr Clouse became ill in November and is now on an indefinite leave of absence.

During the past year a number of authorities in their respective scientific fields were consulted on questions of moment before the Committee arising out of its regular business. In recognition of the helpful cooperation and valuable assistance given, the Committee has voted to express publicly its appreciation by publishing the names of those who in this manner and without remuneration have gladly contributed of their time, experience and knowledge to the benefit of the Committee in its public welfare and health work.

The Committee is officially thanking the following, who have served as consultants:

Prof W E Anderson, Department of Physiological Chemistry, Yale University.

Dr H J Fisher, Connecticut Agricultural Experiment Station, New Haven, Conn.

Genevieve Stearns, Ph.D., research associate professor, department of Pediatrics, State University of Iowa.

Dr Daniel C. Darrow, assistant professor of Pediatrics, Yale University School of Medicine.

Dr Martha M. Eliot, assistant chief, U.S. Children's Bureau, lecturer in clinical pediatrics, Yale University School of Medicine.

Dr Dwight L. Wilbur, assistant professor of Medicine, Mayo Foundation.

Miss Mary A. Foley, assistant professor of Medicine (dietitian), Mayo Foundation.

Prof Henry C. Sherman, head of Department of Chemistry, Columbia University.

Prof Grace MacLeod, professor of nutrition, Teachers College, Columbia University.

## Summary

*The consideration of new submissions was halted temporarily for several months as it became more and more evident that the facilities of the office would not permit the amount of policing over advertising of accepted products that such material seems to demand. That claims opposed to the principles of the American Medical Association are promulgated from time to time is only too evident, but much objectionable material is eliminated, and the Committee during 1935 continued its efforts in this direction.*

*The Committee lost by death its vice chairman, Dr Lafayette B. Mendel, who had been a member of the Committee since its beginning.*

*Important developments of the year include an initiation of efforts to produce constructive reports for publication in The Journal, as planned by the Joint Committee on Vitamins. This subcommittee marks the beginning also of unification of the work of the Committee on Foods with phases of the work of the Council on Pharmacy and Chemistry.*

*With these beginnings, the Committee anticipates further developments leading toward completion of the plans to coordinate its efforts with similar endeavors of other departments at headquarters.*

## Requests for a Special Session of the House of Delegates

In a communication received from the Board of Trustees of the Medical Society of New Jersey, the Board of Trustees of the American Medical Association was requested to call a special meeting of the House of Delegates to be held in January or February 1936 for the purpose of discussing medical economics. Later, similar requests were received from the Medical Society of the District of Columbia, the Council of the Maine Medical Association, the Council of the South Carolina Medical Association, the Council of the Hawaiian Territorial Medical Association and the Executive Committee of the Louisiana State Medical Society. It is the understanding of the Board of Trustees that the communication from the Medical Society of New Jersey was sent to the secretaries or other officers of all constituent medical associations.

The requests submitted from official bodies of six constituent associations were given most careful consideration. In view of the fact that the By-Laws of the American Medical Association

tion specifically provide that special sessions may be called by the Speaker on written request of twenty-five or more delegates representing one third of the constituent associations or on request of a majority of the Board of Trustees, that no delegates had asked that a special session of the House of Delegates be held, that a special meeting of the House of Delegates was held in February 1935, and that the regular session of the Association would be held in May 1936, the members of the Board of Trustees felt that it would be inexpedient to ask that a special session of the House of Delegates be called to convene at any time prior to the regular session

#### Resolution Concerning the Establishment of a National Department of Health

A resolution introduced at the special session of the House of Delegates in February 1935 by Dr C E Humston of Illinois was referred to the Board of Trustees and received careful attention

The Board of Trustees was informed that a committee of the federal government has been appointed to study proposed plans for correlating the work of various departments concerned with medical and public health affairs. So far as the Board of Trustees is advised, this committee has not submitted any proposals or complaints. Having in mind the fact that some years ago a special committee appointed by the House of Delegates had thoroughly investigated a similar proposal and apparently had come to the conclusion that it would not be desirable to support plans for the establishment of a national department of health, and for other reasons which were brought out in the discussion of the general subject, the Board of Trustees did not feel that it would be wise to submit any recommendation to the House of Delegates at this time

#### Instruction in Medical Schools Regarding Organized Medicine

The resolutions submitted below were adopted by the House of Delegates of the Ohio State Medical Association and officially referred to the Board of Trustees. Similar resolutions adopted by the Council of the Arkansas Medical Society were also submitted to the Board

These resolutions are brought to the attention of the House of Delegates for official consideration

WHEREAS, It has been noted with disappointment that some of the graduates of medical schools and colleges in recent years apparently are unfamiliar with the objectives and activities of organized medicine and lack a clear understanding of the benefits to be derived through membership in local, state and national medical societies. Be it

Resolved By the House of Delegates of the Ohio State Medical Association Oct 24 1935, that the administrative officials of all accredited American medical colleges be respectfully requested to provide instruction for senior students on the activities, services and benefits of organized medicine. Be it

Resolved That a copy of this resolution be transmitted to the dean of each of the accredited medical colleges of America the Council on Medical Education and Hospitals and the Board of Trustees of the American Medical Association and the secretary of each constituent state medical society

#### Resolution Pertaining to Scarlet Fever Patent

A resolution submitted to the House of Delegates at the Atlantic City session by Dr J M Birnie, delegate from Massachusetts, was referred to the Board of Trustees

A special committee was appointed to investigate the matters with which this resolution was concerned and the subject of medical patents in general. The Board of Trustees is informed that a similar study is being prosecuted under other auspices

Because of the complexity of the existing situation with respect to medical patents and because of the scope of necessary investigations, the Board of Trustees is not prepared to submit a definite recommendation to the House of Delegates at the present time

#### Resolutions Pertaining to Pure Food Bill and to Advertising

At the Atlantic City session Dr John F Hagerty, delegate from New Jersey, submitted resolutions adopted by the Board of Trustees of the Medical Society of New Jersey requesting the House of Delegates of the American Medical Association to express its opposition to the passage of Senate Bill No 5, generally known as the Copeland Pure Food Bill, and to urge

a congressional investigation of the enforcement of the present Food and Drugs Act and further requesting the American Medical Association to refuse advertisements for any medical journal controlled by the Association or by the constituent state medical associations which are offered by pharmaceutical houses that advertise to the laity. These resolutions were referred to the Board of Trustees and have received thorough consideration

The Board of Trustees desires to inform the House of Delegates that most intensive effort was made, from the moment it became known that a new food and drug bill would be submitted to Congress, to secure the enactment of a reasonable and effective law. The Association has been represented at hearings held before committees of Congress, and many conferences have been held with members of Congress in charge of food and drug legislation and with representatives of government departments and of organizations of national scope. The Council on Pharmacy and Chemistry and the Committee on Foods made careful studies of pending food and drug legislation and prepared official reports, which were approved by the Board of Trustees and published in THE JOURNAL. Discussion of pending food and drug legislation has been presented in editorials and in special articles in THE JOURNAL

For many years the American Medical Association has been persistently active not only in its efforts to secure effective food and drug legislation but also in its efforts to secure efficient and effective administration of food and drug laws. Councils, bureaus and departments of the Association have given the utmost possible cooperation to the Food and Drug Division of the Department of Agriculture and to other governmental agencies concerned with the administration of federal statutes

In connection with this matter, the Board of Trustees has had before it a letter addressed to the chairman and members of the Federal Trade Commission by Marcus W Newcomb, M D, president of the Medical Society of New Jersey, to which were attached a copy of resolutions adopted by the Medical Society of New Jersey and a copy of resolutions adopted by the Board of Trustees of the Medical Society of New Jersey pertaining to the food and drug law, to the advertising of drugs and drug products to the laity and to "the use of the AMA endorsement in lay press and radio programs advertising food products by manufacturers of such articles." In the letter addressed by the president of the Medical Society of New Jersey to the chairman and members of the Federal Trade Commission, it was stated that certain products, including canned tuna fish, butter and "a digitalis medicinal preparation," were the subjects of applications for complaint filed with the subcommittee of the House of Representatives, and that these products displayed the seal of the Committee on Foods or of the Council on Pharmacy and Chemistry of the American Medical Association "despite officially recorded libel actions under the Federal Food and Drugs Act for adulteration or misbranding against those same manufacturers' products." The Board of Trustees is informed that this statement is misleading and unfair and, so far as is known to the Board of Trustees, was made without any effort to discover the facts from the Council on Pharmacy and Chemistry or from the Committee on Foods. The Board of Trustees is informed that the butter referred to in Dr Newcomb's letter to the Federal Trade Commission did not bear the seal of the Committee on Foods but that it was a bulk product which does not come within the consideration of that committee. The Board of Trustees is further informed that as soon as it became known that a notice of judgment had been issued as the result of a seizure by the Food and Drug Division of a small lot of a certain digitalis preparation, the Council on Pharmacy and Chemistry purchased in the open market, at places located in different sections of the United States, samples of this particular product, which were submitted to laboratory examination and were found to be quite up to required standards

In the preamble to the resolutions attached to the letter of the president of the Medical Society of New Jersey, the statement is made that the Committee on Foods, the Council on Pharmacy and Chemistry and the "Investigations Bureau" of the American Medical Association "have exercised selections unwarrantably in the notices of judgment that they have published and have permitted the license to use their seal on the advertisements of



products that are even at the same time being successfully prosecuted by libel actions under the Food and Drug Law." The Board of Trustees is informed that the implications in this statement are unwarranted. Official records of the Council on Pharmacy and Chemistry and of the Committee on Foods are available to the members of the House of Delegates.

In this connection, the Board of Trustees has also had before it a copy of the publication called the "Journal of Intravenous Therapy," apparently the house organ of a concern known as the Looser Laboratory, containing a libelous article, and a part of the preamble to the resolutions adopted by the Medical Society of New Jersey appears. The Board of Trustees is informed that these resolutions were sent to members of Congress from New Jersey, to the Secretary of Agriculture, to the Secretary of the Treasury and to the secretaries of all constituent medical associations as well as to the editors of daily newspapers in New York, Philadelphia, Atlantic City, N. J., and other cities in New Jersey.

With respect to the second part of the resolutions submitted to the House of Delegates by Dr. Hagerty, the Reference Committee on Legislation and Public Relations reported as follows at the Atlantic City session:

With reference to the resolution offered by Dr. John F. Hagerty on behalf of the Medical Society of the State of New Jersey relative to advertising your committee recognizes the danger inherent in the advertising of drugs and drug products to the laity. It sees difficulty however in the way of compliance with the request for the refusal, by the American Medical Association and its constituent state associations of all advertising whatsoever offered by pharmaceutical houses that offend against this principle for publication in the journals controlled by the American Medical Association and its constituent associations.

The committee recommends that this matter be referred to the Board of Trustees for appropriate action.

The publications of the American Medical Association are published under the direction of the Board of Trustees, but the Board does not control the advertising columns of the official journals of constituent associations. The Board of Trustees is heartily in sympathy with the attitude of the Medical Society of New Jersey so far as it applies to the advertising of drugs and drug products that should be administered at the direction of physicians.

The Official Rules of the Council on Pharmacy and Chemistry bearing on this matter are as follows:

**Rule 3—DIRECT ADVERTISING.**—No article that is advertised to the public will be accepted or retained, but this rule shall not apply to (a) disinfectants, germicides and antiseptics, provided the advertising is limited to conservative recommendations for their use as prophylactic applications to superficial cuts and abrasions of the skin and to the mucous surfaces of the mouth, pharynx and nose (but not to those of the eye, and the gastrointestinal and genito-urinary tracts) and provided they are not advertised as curative agents (see comments to Rule 3), (b) liquid petrolatum and simple preparations of liquid petrolatum, agar and simple preparations of agar, and similar preparations which act because of their bulk provided that such lay advertising carries a warning that agar and similar preparations may be harmful in colitis, (c) other agents about which the public should be informed which would not lead to harmful self-medication provided (1) they are not advertised as curative agents and provided (2) that advertising to the public does not go beyond that passed by the Council for physicians (Rule 6).

In the "Explanatory Comments on the Rules" prepared and issued by the Council the comment pertaining to Rule 3 is as follows:

**Rule 3—DIRECT ADVERTISING.**—The impossibility of controlling the irresponsible claims which are usually made in advertisements to the public, the well known dangers of suggesting by descriptions of symptoms to the minds of the people that they are suffering from the many diseases described, the dangers of the unconscious and innocent formation of a drug habit, and the evils of harmful self-medication including the dangers of the spread of many infectious and contagious diseases when hidden from the physician, and similar well-known considerations, are the reasons for discouraging, in the interest, and for the safety, of the public this reprehensible form of exploitation. Advertising in medical journals and other publications distributed solely to physicians or in journals for dentists, pharmacists, nurses

and veterinarians does not come within the scope of this rule, provided such advertising does not invite or encourage use by unqualified persons.

In the case of subjects on which the public should be instructed, as the use of certain disinfectants, germicides, antiseptics, certain laxatives, and such other articles as the Council may specify, advertisements to the public, if not in objectionable forms, are considered admissible. In no case shall such advertisements include recommendations for use as curative agents, nor shall the names of any diseases appear on or in the trade package except in connection with prophylactic recommendations. If the preparation is sufficiently toxic to require caution in its use to prevent poisoning, this fact shall be stated on the label. On account of the deplorable results which would follow any abuse of this privilege, the conscientious cooperation of manufacturers and their agents in adhering strictly to the limitations laid down is asked, and for the same reason the acceptance of an article which is so advertised as to infringe on these limitations in any essential way (as by naming diseases or by making false and exaggerated claims) shall be summarily rescinded, and the reasons for such action may be published without notice to manufacturer or agent. A disinfectant, germicide or antiseptic will be accepted for description in New and Nonofficial Remedies, and an article of this class which has already been accepted will continue to be included in New and Nonofficial Remedies only on the explicit understanding by the manufacturer and agent that such infringements of the rule will be followed by deletion of the article and by publication of the facts as described.

Respectfully submitted

ROCK SLEYSTTR, Chairman  
AUSTIN A. HAYDEN, Secretary  
JAMES R. BLOSS  
ARTHUR W. BOOTH  
ALLEN H. BUNCE  
THOMAS S. CULLEN  
RALPH A. FENTON  
ROGER I. LEE  
CHARLES B. WRIGHT

## ADDENDA TO REPORT OF BOARD OF TRUSTEES

### COMMITTEE ON THERAPEUTIC RESEARCH

*The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.*

*During the year 1935 the committee issued twenty-five new grants.*

A detailed list of these grants together with a list of publications during 1935, and of unexpired grants made before Jan. 1, 1935, is herewith submitted.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1935:

- 1 The Effect of Parathyroid Extract upon the Serum Calcium of Nephrectomized Dogs. Read Ellsworth and Palmer Howard Futcher. *Bulletin of the Johns Hopkins Hospital* 57: 91-98 (Aug.) 1935.
- 2 Further Observations on the Changes in the Electrolytes of the Urine Following the Injection of Parathyroid Extract. Read Ellsworth and William M. Nicholson. *Journal of Clinical Investigation* 14: 823 (Nov.) 1935.
- 3 Vitamin C Concentrates as Preventives Against Black Tongue with Parallel Studies of the Same Concentrates in the Diets of White Rats. L. E. Booher and G. H. Hansmann. *American Journal of Physiology* 114: 429 (Jan.) 1936.
- 4 Fractionation Studies on Provitamin D. Elizabeth M. Koch and F. C. Koch. *Science* 82: 394 (Oct. 25) 1935.
- 5 The Relation of the Oxidation-Reduction Potential of Yeast Cell Suspensions to the Degree of Reduction of Intracellular Cytochrome. J. P. Baumberger, C. C. Fahlen, R. K. Skow and A. Bardwell. *Proceedings of the XV International Physiological Congress* Leningrad and Moscow, U. S. S. R. 1935.
- 6 Presence of Anti-Pernicious Anemia Principle in Normal Human Urine. George E. Wakerlin. *Proceedings of the Society for Experimental Biology and Medicine* 32: 1607 1935.



- 7 Further Evidence for the Presence of a Toxic Factor in Pernicious Anemia, G E Wakerlin and H D Bruner *Science* 82 494 (Nov 22) 1935
- 8 The Presence in Normal Human Urine of a Reticulocyte Stimulating Principle for the Pigeon G E Wakerlin and H D Bruner *Proceedings of the American Physiological Society, American Journal of Physiology* 113 136 (Sept) 1935
- 9 Iodine in Cabbage, Jesse Francis McClendon and Curtis Ethian Holdridge *Biochemical Journal* 29 272, 1935
- 10 Morphine as a Metabolic Stimulant II G Barbour and Janet Andrews *Scientific Proceedings of the American Society for Pharmacology and Experimental Therapeutics Inc Journal of Pharmacology and Experimental Therapeutics* 54 137 (June) 1935
- 11 Excretion of Mercury After Oral Administration of Mercury with Chalk Yellow Mercurous Iodide and Corrosive Mercuric Chloride Torald Sollmann, H N Cole N E Schreiber, H T deWolf and J V Ambler *Archives of Dermatology and Syphilology* 31 15 (Jan) 1935
- 12 Excretion of Mercury After Clinical Intramuscular and Intravenous Injections Torald Sollmann N E Schreiber, H N Cole J V Ambler J A Gammel R L Howard and H C Shaw *Archives of Dermatology and Syphilology* 32 1 (July) 1935
- 13 Mercury Inunctions Torald Sollmann H N Cole, N E Schreiber H F deWolf and J V Van Cleave *Archives of Dermatology and Syphilology* 32 242 (Aug) 1935
- 14 Studies on the Effect of the Administration of Carotene and Vitamin A in Patients with Diabetes Mellitus Elvira P Ralli Harold Brandaleone and Theodore Mandellbaum *Journal of Laboratory and Clinical Medicine* 20 1266 (Sept) 1935
- 15 The Relative Efficiency of a Series of Analeptics as Antidotes to Sublethal and Lethal Dosages of Pentobarbital Chloral Hydrate and Brom Ethanol (Avertin) O W Barlow *Journal of Pharmacology and Experimental Therapeutics* 55 1 (Sept) 1935
- 16 Action of Ovarian Follicle Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears George N Papanicolaou and Ephraim Shorr *Proceedings of the Society for Experimental Biology and Medicine* 32 585 (Jan) 1935
- 17 A Microquinhedron Electrode Its Application to the Determination of the pH of Glomerular Urine of Necturus J A Pierce and Hugh Montgomery *Journal of Biological Chemistry* 110 763 (Aug) 1935
- 18 The Application of the Microquinhedron Electrode to the Determination of the pH of the Aqueous Humor of Rachitic and Normal Rats, J A Pierce *Journal of Biological Chemistry* 111 501 (Oct) 1935
- 19 Effect of Cortico Adrenal Extract on Hemolysin Formation in Normal Adult Animals C A Fox and R W Whitehead *American Journal of Physiology* 113 44 (Sept) 1935
- 20 Effect of Cortico Adrenal Extract on Leukocytes in Blood of Normal Adult Rabbits C A Fox and R W Whitehead *Proceedings of the Society for Experimental Biology and Medicine* 32 756 (Feb) 1935
- 21 Effect of Administered Glucose upon Amino Nitrogen Content of the Blood J M Luck B L Davis Jr and W Van Winkle Jr *Proceedings of the Society for Experimental Biology and Medicine* 32 1039 (April) 1935
- 22 Feeding Experiments with Mixtures of Highly Purified Amino Acids VII The Dual Nature of the Unknown Growth Essential Madelyn Womack and William C Rose *Journal of Biological Chemistry* 112 275 (Dec) 1935
- 23 Crystalline Progesterin and Inhibition of Uterine Motility in Vivo Willard M Allen and Samuel R M Reynolds *Science* 82 155 (Aug 16) 1935
- 24 Physiology of the Corpus Luteum The Comparative Actions of Crystalline Progesterin and Crude Progesterin on Uterine Motility in Unanesthetized Rabbits Willard M Allen and Samuel R M Reynolds *American Journal of Obstetrics and Gynecology* 30 309 (Sept) 1935
- 25 The Separation of the Substances in Liver Which Are Reticulocytegenic in the Guinea Pig and Which Are Therapeutically Effective in Experimental Canine Black Tongue Y Subbarow Bernard M Jacobson and Cyrus H Fiske *New England Journal of Medicine* 212 663 (April 11) 1935
- 26 The Response of the Guinea Pig's Reticulocytes to Substances Effective in Pernicious Anemia A Biologic Assay of the Therapeutic Potency of Liver Extracts Bernard M Jacobson *Journal of Clinical Investigation* 14 665 (Sept) 1935
- 27 The Assay on Guinea Pigs of the Hematopoietic Activity of Human Livers Normal and Pernicious Anemia Bernard M Jacobson *Journal of Clinical Investigation* 14 679 (Sept) 1935
- 28 Absence of Chemotropism in Lymphocytes Harold M Dixon and Morton McCutcheon *Archives of Pathology* 29 679 (May) 1935
- 29 A Comparative Study of the Actions of Morphine and Dilaudid (Dihydromorphine Hydrochloride) on the Intact Small Intestine of the Dog Charles M Gruber and John T Brundage *Journal of Pharmacology and Experimental Therapeutics* 53 120 (Jan) 1935
- 30 Action of Apomorphine Hydrochloride upon the Small Intestine in Nonanesthetized Dogs Charles M Gruber and John T Brundage *Proceedings of the Society for Experimental Biology and Medicine* 32 863 (March) 1935
- 31 The Effect of Different Sizes of Balloons Inserted in the Gut and Changes in Pressure Within Them upon the Activity of the Small Intestine Charles M Gruber and Anthony de Note *American Journal of Physiology* 111 564 (April) 1935
- 32 The Effects of Papaverine Hydrochloride and Dihydromorphine Hydrochloride (Dilaudid) upon the Nonanesthetized Dog's Intestine Sub-
- jected to Different Internal Pressures Charles M Gruber and John T Brundage *Journal of Pharmacology and Experimental Therapeutics* 53 445 (April) 1935
- 33 A Study of the Action of Drugs on Bell's Muscle—'Muscles of the Ureter' Charles M Gruber *Journal of Pharmacology and Experimental Therapeutics* 55 412 (Dec) 1935
- 34 A Comparison of the Actions of Dilaudid Hydrochloride and Morphine Sulfate upon Segments of Excised Intestine and Uterus Charles M Gruber John T Brundage Anthony de Note and Raymond Heilman *Journal of Pharmacology and Experimental Therapeutics* 55 430 (Dec) 1935
- 35 The Nerve Control of the Coronary Vessels with New Experimental Evidence for the Pathways of Efferent Constrictor and Dilator Neurons in the Dog Charles Greene *American Journal of Physiology* 113 361 (Oct) 1935
- 36 Experimental Siderosis II Iron Containing Pigment in Absence of Breakdown of Hemoglobin Vally Menkin and S M Talmadge *Archives of Pathology* 10 61 (Jan) 1935
- 37 Inflammation and Bacterial Invasiveness Vally Menkin *Proceedings of the International Physiological Congress Leningrad and Moscow U S S R* 1935

#### During 1935 the following grants were made

- Grant 254 C W Edmunds professor of materia medica and therapeutics, University of Michigan Medical School \$200 to investigate the action of the drugs in the digitalis group in animals injected with diphtheria toxin
- Grant 255 G H Hansmann professor of pathology Georgetown University School of Medicine and I E Boober Department of Chemistry, Columbia University \$150 to investigate the effectiveness of vitamin G in the cure of black tongue in dogs and if cases can be found of pellagra in the human being
- Grant 256 Vally Menkin Department of Pathology Harvard Medical School \$200 to investigate inflammation and tuberculosis in relation to immunity
- Grant 257 O W Barlow, assistant professor of pharmacology Western Reserve University School of Medicine \$150 to investigate analeptics versus barbiturates
- Grant 258 Claus W Jungblut associate professor of bacteriology Columbia University College of Physicians and Surgeons \$250 to investigate vitamin C versus diphtheria
- Grant 259 O W Barlow assistant professor of pharmacology Western Reserve University School of Medicine, \$100 to investigate the effects of parasympathetic drugs on the intestine
- Grant 260 George D Shafer associate professor of physiology Stanford University School of Medicine \$60 to investigate the effect of sodium citrate on the vagus
- Grant 261 Robert P Walton assistant professor of pharmacology Tulane University of Louisiana School of Medicine \$100 to investigate the absorption of drugs through the oral mucosa
- Grant 262 Victor E Hall assistant professor of physiology Stanford University School of Medicine \$125, to investigate the mechanism of inhibition of the metabolic stimulating action of dimethylphenol by exposure to low environmental temperatures
- Grant 263 H A Shoemaker associate professor of biochemistry and pharmacology, C E Clymer professor of clinical surgery and Henry H Turner University of Oklahoma School of Medicine \$150 to investigate the blood cholesterol and iodine values in thyroid disease and their alteration by treatment
- Grant 264 Detlev W Bronk Johnson professor of biophysics University of Pennsylvania School of Medicine \$200 to investigate the action of various drugs on the autonomic centers
- Grant 265 George E Wakerlin, head of the Department of Physiology and Pharmacology University of Louisville School of Medicine \$200 to investigate hematopoiesis
- Grant 266 I C Koch chairman of the Department of Physiological Chemistry and Pharmacology the University of Chicago \$250 to investigate the antirachitic potency of irradiated sterols other than ergosterol
- Grant 267 Bernard M Jacobson Massachusetts General Hospital \$250 to investigate the therapeutic effects of the purified liver fractions in pernicious anemia tropical sprue and pellagra
- Grant 268 Walter E Hamberger Department of Pharmacology and Toxicology Yale University School of Medicine \$250 to investigate the mechanism of morphine action with special reference to the excitement in cats
- Grant 269 Francis G Blake Sterling professor of medicine and Marion E Howard research assistant in medicine Yale University School of Medicine \$50 to investigate the use of artificial pneumothorax in the treatment of lobar pneumonia
- Grant 270 Elaine P Ralli assistant professor of medicine New York University College of Medicine \$250 to investigate the effect of carotene on the blood vitamin A
- Grant 271 Carl W Walter Department of Surgery Harvard University Medical School \$250 to investigate the glomus body as the site of action of factors causing the complex wound shock
- Grant 272 Ephraim Shorr assistant professor of medicine Cornell University Medical College \$150, to investigate the value of various ovarian preparations
- Grant 273 Marston T Bogert professor of chemistry, Columbia University \$100 to investigate the chemistry and pharmacology of the quinazoline group

Grant 274 John C Krantz Jr professor of pharmacology University of Maryland School of Medicine \$200 to investigate degradation products of dextrose and their possible utilization in diabetes

Grant 275 Roberta Hafkeshing associate professor of physiology, Woman's Medical College of Pennsylvania \$200 to investigate the effects of sodium barbital and other hypnotics

Grant 276 Eugene Stanton Department of Pharmacology Western Reserve University School of Medicine \$150 to investigate the addiction tolerance and abstinence to various narcotics in animals especially rats

Grant 277 Katharine Henderson Department of Pharmacology, Western Reserve University School of Medicine \$300 to investigate the excretion of bismuth

Grant 278 William H Lewis Jr assistant clinical professor of medicine and Arthur C de Graff professor of therapeutics New York University College of Medicine \$150, to investigate the function of the heart in relation to age

The following grants were issued before Jan 1, 1935 In some cases the grant has expired and an unexpired balance remains, or the work is not yet completed or not yet published

Grant 102 C W Greene professor of physiology and pharmacology University of Missouri Department of Physiology \$250 to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia

Grant 119 Nicholas Kopeloff research associate in bacteriology New York State Psychiatric Institute and Hospital \$100 to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies

Grant 143 Cleveland J White M D 104 South Michigan Avenue Chicago \$150 to investigate the local general and prophylactic aspects of superficial fungus diseases of the skin

Grant 153 C W Greene professor of physiology and pharmacology University of Missouri Department of Physiology \$300 to investigate the reaction of the coronary system to drugs

Grant 164 E L Jackson associate professor of pharmacology Emory University School of Medicine \$200 to investigate the antagonism between sodium barbital and insulin

Grant 166 Jean Oliver professor of pathology Hoagland Laboratory, Long Island College of Medicine \$200 to investigate experimental nephritis in the frog

Grant 171 Ernest C Dickson professor of Department of Public Health and Preventive Hygiene Stanford University School of Medicine \$250 to investigate therapeutic procedures against coccidioid granuloma

Grant 192 Carl J Wiggers professor of physiology Western Reserve University School of Medicine \$250 to investigate the effect of drugs on the coronary circulation in intact dogs

Grant 194 Sarah A Riedman Columbia University College of Physicians and Surgeons \$200 to investigate the effect of a high fat or ketogenic diet on the susceptibility of animals to convulsions of experimental origin

Grant 200 Walter Bauer Massachusetts General Hospital the Robert W Lovett Memorial Foundation of the Harvard Medical School \$250 to investigate the anatomy and physiology of normal joints with special reference to rheumatoid arthritis

Grant 201 George R Cowgill associate professor of physiologic chemistry Sterling Hall of Medicine Yale University \$250 to investigate vitamin B in relation to morphine addiction

Grant 202 Charles M Gruher professor of pharmacology Jefferson Medical College of Philadelphia \$200 to investigate the effects of drugs on Bell's muscle trigon and fundus of the urinary bladder and of dilaudid on the intestine of unanesthetized dogs

Grant 204 E B Krumpholtz professor of pathology McManes Laboratory of Pathology University of Pennsylvania School of Medicine \$100 to investigate leukocyte attraction

Grant 209 V C Myers professor of biochemistry and F C Bing Department of Biochemistry Western Reserve University School of Medicine \$250 to investigate iron metabolism

Grant 210 C I Reed associate professor of physiology University of Illinois College of Medicine \$200 to investigate the use of viosterol 10 000 X in seasonal hay fever

Grant 212 William C Rose professor of physiologic chemistry University of Illinois \$375 to investigate the isolation of an unknown dietary essential present in proteins

Grant 213 Richard W Whitehead professor of physiology and pharmacology University of Colorado School of Medicine and Hospitals \$200 to investigate the influence of adrenal cortex extract administration on the resistance to bacterial toxins

Grant 214 E A Park professor of pediatrics and J A Pierce Johns Hopkins University School of Medicine \$200 to investigate the reaction of cartilage

Grant 219 Torald Sollmann professor of pharmacology and Harold N Cole associate professor of dermatology and syphilology Western Reserve University School of Medicine \$100 to investigate the epidemic factor in mercurial salivation

Grant 221 John G Reinhold Department of Public Health Philadelphia General Hospital \$250 to investigate the action of aminoacetic acid in progressive muscular dystrophy

Grant 222 Eugene U Still assistant professor of physiology the University of Chicago \$250 to investigate the changes in the metabolism of the pancreas

Grant 223 Clinton H Thienes professor of pharmacology and Lawrence E Detrick Department of Pharmacology University of Southern California School of Medicine \$200 to investigate withdrawal phenomena in morphine addicted animals

Grant 227 Katharine I Henderson Department of Pharmacology Western Reserve University School of Medicine \$100 to investigate the chemical excretion of mercury and bismuth

Grant 228 Henry G Barbour associate professor of pharmacology and toxicology Yale University School of Medicine \$250 to investigate metabolism and water exchange in morphine habituation

Grant 231 William R Amherston professor of physiology, University of Tennessee College of Medicine \$100 to investigate hemoglobin per fusion fluids

Grant 232 George R Cowgill associate professor of physiologic chemistry Yale University School of Medicine \$250 to investigate the heart in vitamin B deficiency

Grant 236 Charles W Greene professor of physiology and pharmacology University of Missouri School of Medicine \$100 to investigate the pharmacology of the so called specific coronary dilator drugs

Grant 237 Louis N Katz director of cardiovascular research Michael Reese Hospital Chicago \$100 to investigate the action of drugs on the coronary circulation

Grant 238 Roy R Kracke professor of pathology Emory University School of Medicine \$250 to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits

Grant 239 John R Murlin director and professor of physiology University of Rochester School of Medicine \$100 to investigate the absorption of insulin from the alimentary tract

Grant 240 Kenneth W Thompson Peter Bent Brigham Hospital Boston \$250 to investigate the effects of the thyroid stimulating hormone pituitary its relationship to other substances in the possible control of hyperthyroidism

Grant 241 George E Wakerlin associate professor of physiology and pharmacology University of Louisville School of Medicine \$200 to investigate hematopoiesis

Grant 242 Abraham White Department of Physiological Chemistry, Yale University School of Medicine \$100 to investigate the metabolism of the essential amino acids cystine methionine and histidine

Grant 243 Fred C Koch chairman of the Department of Physiological Chemistry and Pharmacology the University of Chicago \$250 to investigate the antirachitic potency of irradiated sterols other than ergosterol

Grant 245 Carl J Wiggers, professor of physiology Western Reserve University School of Medicine \$250 to investigate the usefulness of drugs in coronary thrombosis

Grant 246 Treat B Johnson, Sterling professor of chemistry Yale University \$250 to investigate the pharmacologic action of some pyridine derivatives in relation to their chemical constitution

Grant 247 Arthur W Grace Department of Medicine Cornell University Medical College \$250 to investigate the use of antimonial compounds in the treatment of lymphogranuloma inguinale

Grant 248 Fred C Koch chairman of the department of Physiological Chemistry and Pharmacology the University of Chicago \$250, to investigate the testis hormone

Grant 249 J Percy Baumberger associate professor of physiology, Stanford University \$200 to investigate the occurrence and oxidation reduction potential of pigments in tumor cells

Grant 250 A R McIntyre professor of pharmacology University of Nebraska College of Medicine \$100 to investigate the effects of the digitalis bodies on the metabolism of dextrose by the cardiac musculature

Grant 251 Bernard Fantus professor of therapeutics University of Illinois College of Medicine \$100 to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin

Grant 252 Fred D Weidman professor of dermatologic research University of Pennsylvania School of Medicine \$100 to investigate the causes of human blastomycosis

Grant 253 Katharine I Henderson Department of Pharmacology, Western Reserve University School of Medicine \$300, to investigate the excretion of bismuth

### Report of the Committee on Scientific Research for 1935

During the year, eighty-seven formal applications received consideration and forty-six awards were made The new grants support research in various medical fields In practically all cases the money was turned over to the financial officer of the institution with which the grantee is connected, with the understanding that it would be subject to requisition by the grantee and that an accurate account of the expenditures would be kept From recent reports by grantees it appears that as a rule their work is making satisfactory progress The final or practically final results of work under forty-two grants have been published or are in the course of publication The results of the work under six grants prior to 1935 are under preparation for publication In the case of twenty-five grants prior to 1935 active work is still in progress, but in several cases reports on results have been published In the case of four grants the files have been closed without the publication of any results Refunds totaling \$950.33 were made during the year of unexpended balances from grants

At the end of 1935, 392 grants have been made by the committee since its establishment in 1903 The total amount expended is \$147,936.09 Only two indications of the significance of this support of medical research are mentioned now, the rise to distinction in medical science of grantees whose early efforts at research were aided by the committee, and the

taking in hand by foundations of research projects work on which in the early stages received support from the committee

The committee ventures to recommend that as nearly as possible the same appropriation be made for 1936 as for 1935,

### Financial Statement for 1935

Balance Jan 1, 1935	\$ 6,404 70
Appropriation for 1935	13 750 00
Refund grant 233	18 48
Refund grant 266	186 89
Refund grant 301	0 99
Refund grant 311	5 77
Refund grant 318	252 16
Refund, grant 319	36 02
Refund, grant 328	18 72
Refund grant 330	5 67
Refund grant 357	424 95
Refund grant 359	1 58
	<hr/> \$21 105 03

### Grants and Expenses Paid in 1935

Grant 347 Edward S West	\$ 300 00
Grant 348 Phillips Thygeson	400 00
Grant 349 Edward H Schwab	200 00
Grant 350, Frederic A Gibbs	100 00
Grant 351 W O Thompson	300 00
Grant 352 W J Nungester	250 00
Grant 353, Frank R Menne	500 00
Grant 354 Roy H Turner	450 00
Grant 355, Royall M Calder	150 00
Grant 356 Jay C Davis	500 00
Grant 357 John H Foulger	500 00
Grant 358 John Field	200 00
Grant 359 Israel S Kleiner	200 00
Grant 360 A M Wright, J J Mulholland and T W CoTui	300 00
Grant 361 P L Heitmeyer	100 00
Grant 362 Lloyd H Ziegler and Arthur Knudson	100 00
Grant 363 Rachel E Hoffstadt	100 00
Grant 364 Dean A Collins	200 00
Grant 365 Ludwig A Emge	500 00
Grant 366 G E Burget	500 00
Grant 367 R Gault and A C Ivy	600 00
Grant 368 Felix Saunders	250 00
Grant 369 Harold Jeghers	150 00
Grant 370 Richard L Crouch	500 00
Grant 371 A Barnett	300 00
Grant 372, John L Ulrich	450 00
Grant 373 Frank W Allen	100 00
Grant 374 Charles B Huggins	400 00
Grant 375, Heinrich Necheles	100 00
Grant 376 Herbert F Thurston	300 00
Grant 377 Frederick A Fender	600 00
Grant 378 Wallace M Yater	400 00
Grant 379 Victor C Myers (Donald E Bowman)	650 00
Grant 380 N W Popoff	600 00
Grant 381 John R Murlin	600 00
Grant 382 L S Goodman A J Geiger and L N Claiborn	250 00
Grant 383 Harry Sobotka	300 00
Grant 384 J Louis Weller	108 00
Grant 385 Erwin Brand and G F Cahill	200 00
Grant 386 E V McCollum	150 00
Grant 387 George D Snell	500 00
Grant 388 Tracy J Putnam	150 00
Grant 389 Tracy J Putnam	100 00
Grant 390 Abraham White	50 00
Grant 391 Jessie L King	150 00
Grant 392 Edward H Schwab	600 00
Clerical expense	277 66
Committee expense	37 06
Printing and supplies	
	<hr/> \$14 872 72
	<hr/> \$ 6 232 31

Balance on hand

namely, \$12,550 for grants in aid of medical research and \$1,200 for expenses of the committee

The financial statement for 1935 is presented, also brief accounts of grants pending at the end of 1934 and a list of the grants made in 1935

Respectfully submitted

COMMITTEE ON SCIENTIFIC RESEARCH OF  
THE AMERICAN MEDICAL ASSOCIATION

LUDVIG HEKTOEN, Chicago, Chairman

Term expires, 1936

C C BASS, New Orleans

Term expires, 1937

JOHN J MORTON, Rochester, N Y

Term expires, 1938

N W JONES, Portland, Ore

Term expires, 1939

MARTIN H FISCHER, Cincinnati

Term expires, 1940

### GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

#### NEW GRANTS—1935

- Grant 347 Edward S West University of Oregon, \$300, hydroxylated fatty acids in tissues
- Grant 348 Phillips Thygeson State University of Iowa, \$400 trachoma and inclusion virus disease of the genito-urinary tract
- Grant 349 Edward H Schwab, University of Texas, \$200 mechanism of cardiac hypertrophy
- Grant 350 Frederic A Gibbs, Harvard Medical School \$100 fiber system in the cat's brain concerned in convulsions
- Grant 351 W O Thompson Rush Medical College \$300 effect of enzymatic digestion on desiccated thyroid
- Grant 352 W J Nungester, Northwestern University \$250 experimental lobar pneumonia
- Grant 353 Frank R Menne University of Oregon, \$500, metabolism of cholesterol in rabbits
- Grant 354 Roy H Turner Tulane University \$450 physiology of peripheral vessels
- Grant 355 Royall M Calder Kent School Kent Conn 150 mechanism of pneumococcal inflammation
- Grant 356 Jay C Davis, University of Minnesota, \$500 coronary flow and lesions of the aortic valves
- Grant 357 John H Foulger University of Cincinnati, \$500 marrow stimulants in the gastric contents of the hog
- Grant 358 John Field, Stanford University, \$200 nitrated phenols and related compounds
- Grant 359 Israel S Kleiner New York Homeopathic Medical College \$200 analysis of various materials for ascorbic (ascorbic) acid
- Grant 360 A M Wright J J Mulholland and T W CoTui New York University \$300 physiology of sympathetomized dogs
- Grant 361 P L Heitmeyer, University of Oregon \$100 experimental uterine ovarian implants
- Grant 362 Lloyd H Ziegler and Arthur Knudson Albany Medical College \$100 activity after recovery from rickets
- Grant 363 Rachel E Hoffstadt University of Washington \$100 protein and carbohydrate fractions of *Staphylococcus aureus*
- Grant 364 Dean A Collins University of Minnesota \$200, hypertension following ligation of renal arteries in dogs
- Grant 365 Ludwig A Emge Stanford University \$500 effect of castration on malignant tumors
- Grant 366 G E Burget University of Oregon \$500 physiology of cardiac portion of stomach
- Grant 367 Robert Gault and A C Ivy American Institute for the Deaf Blind Evinston Ill \$600 mechanical stimulation of the vibratile organs
- Grant 368 Felix Saunders, University of Chicago, \$250 growth factors for bacteria
- Grant 369 Harold Jeghers Boston University, \$150 vitamin A deficiency in certain diseases
- Grant 370 Richard L Crouch University of Missouri \$500, connections of diencephalon
- Grant 371 A Barnett New York University \$300 measurement of impedance angle in thyrotoxicosis
- Grant 372 John L Ulrich Johns Hopkins University, \$450 cerebral functions in the action of antagonistic muscles
- Grant 373 Frank W Allen University of California \$300 correlation of nucleotide content with glycolytic power of red blood cell in pernicious anemia
- Grant 374 Charles B Huggins University of Chicago, \$400 relation of temperature to hematopoiesis
- Grant 375 Heinrich Necheles Michael Reese Hospital Chicago \$100, action of pitressin on gastrointestinal motility
- Grant 376 Herbert F Thurston University of Indiana, \$300, roentgen ray in treatment of gas gangrene
- Grant 377 Frederick A Fender Stanford University \$600 prolonged stimulation of parts of the nervous system
- Grant 378 Wallace M Yater Georgetown University Hospital, Washington D-C histopathologic basis of bundle branch block
- Grant 379 Victor C Myers (Donald E Bowman) Western Reserve University \$650 chemical test for pregnancy
- Grant 380 N W Popoff Highland Hospital Rochester, N Y \$600 arteriovenous anastomosis
- Grant 381 John R Murlin University of Rochester \$600 testis hormone
- Grant 382 L Goodman A J Geiger and L Claiborn, Yale University \$250 antianemic principle
- Grant 383 Harry Sobotka Mount Sinai Hospital, New York, \$300 enzymatic destruction of blood group carbohydrate
- Grant 384 J Louis Weller George Washington University, \$108 action of certain substances on hematopoietic tissue of the chick
- Grant 385 Erwin Brand and G F Cahill New York State Psychiatric Institute and Hospital \$200 cystinuria
- Grant 386 E V McCollum Johns Hopkins University \$150 adaptation of the eyes to subdued light and its relation to vitamin A
- Grant 387 George D Snell Roscoe B Jackson Memorial Laboratory, Bar Harbor Maine \$500 hereditary changes in germ cells from x-rays
- Grant 388 Tracy J Putnam Boston City Hospital Boston \$150 effect of low voltage current on nervous system
- Grant 389 Tracy J Putnam Boston City Hospital Boston, \$150, mechanism of cortical atrophy in dementia paralytica
- Grant 390 Abraham White Yale University \$100 chemistry and metabolism of the sulfur of proteins

Grant 391 Jessie L King Goucher College, \$50, effect of cortical extract on rats

Grant 392 Edward H Schwab University of Texas, \$150 mechanism of cardiac hypertrophy

## STATE OF WORK UNDER PREVIOUS GRANTS

## 1 COMPLETED DURING THE YEAR

Grant 118 1927 \$1 000 to Edward Reynolds and E A Hooton Harvard University mechanism of erect posture Reynolds Edward and Hooton E A Exploratory Study of the Relation of the Pelvis to the Erect Posture in Living Subjects to be published in the *American Journal of Physical Anthropology or in Human Biology*

Grant 133, 1928 I Lowell Dunn University of Nebraska \$715 spectrophotometric analysis of biologic fluids (refund \$53 14) Dunn F Lowell A Cylindrical Rotating Sector Photometer *Rev Scient Instrum* 2 807 1931 Dunn F Lowell and Sudman A T Ultra violet Spectrophotometry of Human Blood Plasma to be published in *Archives of Pathology*

Grant 162 1929 J P Simonds Northwestern University, \$100 action of cinchophen and its derivatives on the liver Churchill T P and Van Wagoner F H Cinchophen Poisoning *Proc Soc Exper Biol & Med* 28 581 1931 Van Wagoner F H and Churchill T P Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning *J A M A* 99 1859 1932 Churchill T P and Manshardt, D O Experimental Production of Gastric and Duodenal Ulcers in Dogs in Cinchophen Poisoning *Proc Soc Exper Biol & Med* 30 825 1933 Van Wagoner F H and Churchill T P Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning of Dogs *Arch Path* 14 860 1932

Grant 198 1931 Gilbert Daldorf (Robert L Dickinson) Grasslands Hospital Valhalla N Y \$200 for a study of the human uterus by casts and other ways (refund \$94) The results will be incorporated in a book by Robert L Dickinson on the Human Vaginal and Uterine Cavities

Grant 203 1931 W J Merle Scott University of Rochester \$300 the role of the adrenal cortex in pyogenic infections (refund \$64 22) Scott W J Merle and others The Influence of Adrenal Cortex Extract on the Resistance to Certain Infections and Intoxications *Endocrinology* 17 529 1933

Grant 209 1931 Wilbur A Selle University of Texas \$150 carbohydrate metabolism in its relation to the growth of tumors See grant 243 1932

Grant 233 1932 Detlev W Bronk University of Pennsylvania \$550 nervous regulation of the circulation (refund \$18 48) Bronk D W and Ferguson L K Impulses in Cardiac Sympathetic Nerves, *Proc Soc Exper Biol & Med* 30 339 1932 Bronk D W Ferguson L K and Solandt D Y Inhibition of Cardiac Accelerator Impulses by the Carotid Sinus *ibid* 31 579 1934 Gammon George D and Bronk, D W Pacinian Corpuscles in the Mesentery and Their Relation to the Vascular System *ibid* 31 788 1934 Bronk D W and Stella G The Response to Steady Pressures of Single End Organs in the Isolated Carotid Sinus *Am J Physiol* 110 708 1935 Gammon G D, and Bronk D W The Discharge of Impulses from Pacinian Corpuscles in the Mesentery and Its Relation to Vascular Changes *Am J Physiol* 114 77 1935

Grant 239 1932 Victor C Jacobsen, Albany \$1 000 transplantable mouse melanoma (refund \$31 28) Jacobsen Victor C and Klimick Gustavus H Jr Melanin I Its Mobilization and Excretion in Normal and in Pathologic Conditions *Arch Path* 17 141 1934 Jacobsen Victor C Melanin II A Review of Chemical Aspects of the Melanin Problem *ibid* p 391

Grant 240 1932 William D McNally Rush Medical College \$650 the effect of tobacco tar on the lungs of rats and other animals McNally W D The Tar in Cigarette Smoke and Its Possible Effects *Am J Cancer* 16 1502 1932

Grant 243 1932 Wilbur A Selle University of Texas \$250 carbohydrate metabolism in its relation to the growth of tumors See grant 209 1931 Selle W A and Bodansky Meyer Effect of Bromocaproic Acid on Rat Sarcoma *Am J Cancer* 23 289 1935

Grant 265 1932 S W Ranson Northwestern University Chicago \$400 structure and function of cutaneous nerves in man Ranson S W Cutaneous Sensation *Science* 78 395 1933 (See grant 299 1933)

Grant 273 1933 Gregory Schwartzman Mount Sinai Hospital New York \$400 study on antibodies to Rous sarcoma agent by local skin reactivity Schwartzman Gregory Phenomenon of Local Skin Reactivity to Bacterial Filtrates in Relation to Rous Chicken Sarcoma Antibodies *J Infect Dis* 57 129 1935

Grant 278 1933 Carl C Speidel University of Virginia \$100, the myelin nerve sheath with polarized light See grant 303 1933

Grant 279 1933 E C Faust Tulane University \$800 Strongyloides stercoralis See grant 321 1935

Grant 280 1933 W T Dawson University of Texas \$200 the relations between the chemical constitution and toxicity of cinchona alkaloids Dawson W T and others Hydrocinchonidine and Hydrocinchonine in Malaria *Am J Trop Med* 13 437 1933 See grants 332 and 339 1934

Grant 281 1933 Arthur Knudson and Lloyd Ziegler Albany Medical College \$325 the remote effects of rickets in rats Ziegler L H and Knudson A Study of Activity After Recovery from Rickets to be published in *Journal of Comparative Physiology* See grant 362 1935

Grant 282 1933 Maurice B Visscher University of Illinois \$200 mechanical efficiency of the heart Peters H C Rea C E and Visscher Maurice B Influence of Calcium Ions upon Energy Metabolism of the Mammalian Heart *Proc Soc Exper Biol & Med* 32 268

1934 Visscher Maurice B The Energy Metabolism of the Heart in Failure and the Influence of Drugs upon It, to be submitted for publication in *American Heart Journal or Journal of Experimental Medicine*

Grant 284 1933 Helen C Coombs New York Homeopathic Medical College and Flower Hospital \$600 the bromide treatment of experimental convulsions (refund, 60 cents) Coombs Helen C Pike F H and Searle Donald S The Relation of Contracture and Tetany to Experimentally Produced Calcium Deficiency in Cats With and Without Lesions of the Cortical Motor Areas *Endocrinology* 19 421 1935

Grant 294 1933 Robert Hegner Johns Hopkins University \$300 relation between intestinal starch and infections with protozoa Hegner Robert and Eskridge Lydia Influence of Carbohydrates on Intestinal Protozoa in Vitro and in Vivo *Am J Hyg* 21 121 1935

Grant 299 1933 S W Ranson Northwestern University \$250 cutaneous nerves in man (See grant 265 1932) Ranson S W Number Size and Myelination of the Sensory Fibers in the Cerebrospinal Nerves chapter I of Sensation Its Mechanisms and Disturbances *Proceedings of the Association for Research in Nervous and Mental Diseases* Vol 15 Baltimore William & Wilkins Company 1935

Grant 301 1933 Allen D Keller University of Alabama \$500 functions of brain stem (refund 9 cents) Keller A D The Separation of the Heat Loss and the Heat Production Mechanism in Chronic Preparations *Am J Physiol* 113 78 1935 Keller A D and Noble William Adiposity with Normal Sex Function Following Extirpation of the Posterior Lobe of the Hypophysis in the Dog *ibid* p 79 Keller A D Protection by Peripheral Nerve Section of the Gastrointestinal Tract from Ulceration Following Hypothalamic Lesions *ibid* p 76 Keller A D Noble William and Keller P D Hypoglycemia Following Experimental Hypothalamic Lesions *ibid* p 80 Keller A D Observations on Ulceration in the Digestive Tract Following Intracranial Procedures in the Dog accepted for publication in *Archives of Pathology* Keller Allen D and D'Amour, Marie C Ulceration in the Digestive Tract Following the Procedure of Hypophysectomy in the Dog accepted for publication in *Archives of Pathology* Keller Allen D Protection by Peripheral Nerve Section of the Gastrointestinal Tract from Ulceration Following Hypothalamic Lesions, accepted for publication in *Archives of Pathology*

Grant 303 1933 C C Speidel University of Virginia \$250, study of living nerves See grant 278 1933 Speidel Carl Caskey Growth Irritation and Repair of Nerves *Arch f exper Zellforsch* 15 328 1934 Speidel Carl Caskey Studies of Living Nerves, *J Comp Neurol* 61 1 1935 and *Biol Bull* 68 140 1935

Grant 304 1933 Frederic A Gibbs Boston City Hospital Boston, \$200 convulsive center in the cat brain See grant 350 1935 Gibbs Frederic A and Gibbs E L The Convulsions Threshold of Various Parts of the Cats Brain *Arch Neurology & Psychiatry* to be published Gibbs Frederic A and Gibbs E L A Purring Center in the Cat's Brain submitted to *Journal of Comparative Neurology*

Grant 305 1933 John R Murlin University of Rochester, \$500 effect of sex hormones on energy metabolism See grants 331, 1934 and 381 1935

Grant 311 1934 M G Seelig Barnard Free Skin and Cancer Hospital St Louis \$250 radiosensitivity of neoplasms (refund \$5 77) Seelig M G Eckert C T and Cooper Z K The Relationship between Vascularity and the Reaction to Radium of Squamous Epithelium *Am J Cancer* 25 585 1935

Grant 312 1934 C A Hellwig St Francis Hospital Wichita, Kan, \$100 thyroid function in experimental colloid goiter Hellwig C Alexander Thyroid Adenoma in Experimental Animals *Am J Cancer* 23 550, 1935 Hellwig C Alexander The Thyroid Gland in Kansas *Am J Clin Path* 5 103 1935 Hellwig C Alexander Experimental Goiter Functional Chemical and Histologic Studies, *Arch Path* 19 364 1935

Grant 313 1934 L A Emge Stanford University \$300 relation between pregnancy and tumor growth See grants 341, 1934 and 365, 1935 Emge L A The Influence of Pregnancy on Tumor Growth, *Am J Obst & Gynec* 28 682 1934

Grant 315 1934 Phillips Thygeson University of Iowa \$300, virus diseases of the eye See grant 348, 1935 Thygeson Phillips The Etiology of Inclusion Blepharitis *Am J Ophthalm* 17 1019 1934 Thygeson Phillips and Proctor Francis I The Filtrability of Trachoma Virus, *Arch Ophthalm* 13 1018 1935

Grant 318 1934 Charles J Sutro Hospital for Joint Diseases New York \$300 for work with the fluorescent microscope (refund \$252 16) Sutro Charles J and Burman Michael S Practical and Experimental Uses of Fluorescence in Medicine *Arch Phys Therapy & Rec Rodum* 16 71 1935

Grant 319 1934 J Paul Visscher Western Reserve University, \$1 000 for work by Donald E Bowman on a chemical test for pregnancy Visscher J P and Bowman Donald E Chemical Determination of Pregnancy *Proc Soc Exper Biol & Med* 31 460 1934 Bowman D E Visscher J P, and Mull J W Possible Application of Chemical Reactions in the Determination of Pregnancy *ibid* 32 522 1934 Bowman D E Application of the Oxidation Reduction Potential of the Anterior Pituitary and Related Hormones as a Test for Pregnancy in the course of publication See grant 379 1935

Grant 320 1934 M L Tainter Stanford University \$1 000 metabolic actions of dinitrophenol in man Tainter Maurice I Cutting W C and Stockton A B Use of Dinitrophenol in Nutritional Disorders *Am J Pub Health* 24 1045 1934 Tainter M L Stockton A B and Cutting W C Dinitrophenol in the Treatment of Obesity J A M A 105 332 1935 Tainter M L Cutting W C and Hines Elizabeth Effects of Moderate Doses of Dinitrophenol on the Energy Exchange and Nitrogen Metabolism of Patients under Conditions of Restricted Dietary *J Pharmacol & Exper Therap* 55 326 1935

Grant 321, 1934 Ernest C Faust Tulane University \$800 for completion of study on Strongyloides stercoralis. See grant 279, 1933. Faust Ernest Carroll Wells, J W Adams C and Beach T D The Fecundity of Parasitic Female Strongyloides *Proc Soc Exper Biol & Med* 31 1041 1934 Faust, Ernest Carroll Wells J W Adams, C, and Beach T D Experimental Studies on Human and Primate Species of Strongyloides *Arch Path* 18 605, 1934 Beach, Ted D Experimental Propagation of Strongyloides in Culture, *Proc Soc Exper Biol & Med* 32 1484 1935 Faust Ernest Carroll Experimental Studies on Human and Primate Species of Strongyloides *Arch Path* 19 769, 1935

Grant 323 1934 Edward J Van Liere West Virginia University \$300 effect of anoxemia on smooth muscle Van Liere, Edward J Crisler George and Wiles I A The Effect of Anoxemia on the Pyloric Sphincter *Am J Physiol* 111 330 1935 Van Liere Edward J The Effect of Anoxemia on the Emptying Time of the Human Stomach *Arch Int Med* to be published Van Liere Edward J The Effect of Ephedrine on the Emptying Time of the Human Stomach J A M A to be published

Grant 326 1934 Rachel E Hoffstadt University of Washington, \$200, protein and carbohydrate fractions of *Staphylococcus aureus*. See grant 363 1935 Hoffstadt, Rachel E and Clark Wesley M Studies on the Antigenic Structure of the Variants of *Staphylococcus aureus* I The Carbohydrates of the Rough and Smooth Forms of *Staphylococcus aureus* *J Infect Dis* 56 250 1935

Grant 328 1934 W R Tweedy Loyola University, \$300 parathyroid hormone (refund \$1872) Roberts R G Tweedy W R and Smullen G H Some Reactions of Ammonolyzed Parathyroid Hormone, *J Biol Chem* 112 209 1935

Grant 329 Jane Sands Rohh, Syracuse University \$300 for further study of individual cardiac muscle Rohh Jane Sands Lashy M and Hiss J G Fred Experimental Interference with Conduction in the Heart, *Am J M Sc* 188 835 1934 Rohh Jane Sands The Structure of the Mammalian Ventricle and the Mammalian Auricle *Momons J* March 1934 Rohh Jane Sands A Historical Survey of Studies of Ventricular Structure *ibid* August 1934 Rohh Jane Sands Dooley M S Hiss J G F and Rohh R C The Effect of Ouabain upon the Type of Electrocardiogram Resulting from Specific Muscle Lesions *Am J Physiol* 113 110 1935 Rohh Jane Sands and Rohh Robert C The Pathway of the Excitatory Process in the Mammalian Ventricle, *ibid* p 111 Rohh, Jane Sands and Rohh, Robert C Experimental Cardiac Muscle Lesions in the Monkey, *ibid* p 111 Rohh Jane Sands and Rohh Robert C The Distribution of the Coronary Vessels to the Ventricular Muscle Bands *ibid* p 111 Rohh Jane Sands Rohh, Robert C and Hiss J G Fred Localization of Premature Beats in the Mammalian Ventricle, *Proc Soc Exper Biol & Med* 32 1510, 1935 Rohh Jane Sands Hiss J G Fred, and Rohh Robert C Localization of Cardiac Infarcts According to Component Ventricular Muscles *Am Heart J* 10 287, 1935 Medal, Scientific Exhibit A M A 1935

Grant 330 1934 Alexander S Wiener Jewish Hospital of Brooklyn \$150 agglutinogens and agglutinins of human blood and their heredity (refund, \$567) Wiener A S Medicolegal Applications of Blood Grouping, with Special Reference to the Agglutinogens M and N of Landsteiner and Levine *Conad M A J* 32 393 1935 Wiener A S The Agglutinogens M and N of Landsteiner and Levine, chapter XI of Blood Groups and Blood Transfusion, Springfield, Ill., Charles C Thomas 1935, p 119

Grant 331 1934 John R Murlin University of Rochester, \$900 the male hormone and metabolism. See grants 305 1933 and 381 1935 Kochakian Charles D and Murlin John Raymond The Effect of Male Hormone on the Protein and Energy Metabolism of Castrate Dogs *J Nutrition* 10 437 1935

Grant 332 1934 W T Dawson University of Texas \$100 cinchona alkaloids. See grants 280 1933 and 339 1934

Grant 334 1935 H A Kemp W H Moursund and H E Wright, Baylor University \$267 05 relapsing fever in Texas (refund \$51 25) Kemp Hardy A Moursund W H and Wright H E Relapsing Fever in Texas *Am J Trop Med* 15 495 1935

Grant 335 1935 Erwin Brand and G F Cahill, New York State Psychiatric Institute and Hospital \$200 cystinuria Brand Erwin Cahill George F and Harris Meyer M Cystinuria The Metabolism of Cystine Cysteine Methionine and Glutathione *J Biol Chem* 109 69 1935 Brand Erwin and Cahill George F Cystinuria The Metabolism of Serine *ibid* p 545 Brand Erwin Cahill George F and Block Richard J Cystinuria The Metabolism of Homocysteine and Homocystine *ibid* 110 399 1935 See grant 385 1935

Grant 339 1934 W T Dawson University of Texas \$100 relation between chemical constitution and physiologic action of cinchona alkaloids. See grants 280 1933 and 332 1934 Dawson W T and Harms H P Toxicity of Quinine Quinidine Hydroquinidine and Hydrocinchonidine in the Guinea Pig *Proc Soc Exper Biol & Med* 32 595 1935 Dawson W T Influence of Site of Subcutaneous Injection upon Toxicity Figures *ibid* p 596 Bodansky Oscar and Dawson W T Subnormal Temperatures from Poisoning in Relation to Toxicity Determination *ibid* p 749 Dawson W T and Bodansky Oscar Chemical Constitution and Convulsant Action of Cinchona Bases *J Pharmacol & Exper Therap* 54 140 1935

Grant 359 1935 Israel S Kleiner New York Homeopathic Medical College \$200 presence of cevitamic (ascorbic) acid in foodstuffs (refund \$158) Tauber Henry and Kleiner Israel S An Enzymic Method for the Estimation of True Vitamin C *J Biol Chem* 110 559 1935 Tauber Henry and Kleiner Israel S The Antiscorbutic Value of Dandelion *Science* 82 552 1935

## 2 INCOMPLETE

## A WORK UNDER THE GRANT COMPLETED, ACCOUNT RENDERED OF EXPENSES BUT RESULTS NOT PUBLISHED FULLY

Grant 174, 1930 Alfred R Ross College of Medical Evangelists Loma Linda Calif, \$1455 hay fever pollens in the Southwest

Grant 179, 1930 George T Pack Memorial Hospital New York \$300 certain clinicopathologic problems of melanoma (See grant 231 1932)

Grant 231 1932 George T Pack Memorial Hospital, New York \$500 complete analysis of 300 cases of melanoma (See grant 179 1930)

Grant 238 1932 Harold E Himwich Yale University, \$1000 the relation of the autonomic nervous system to metabolism and effect of alcohol on metabolism Himwich H C and associates Effects of Alcohol on Metabolism *Am J Physiol* 101 57 1932 Metabolism of Alcohol J A M A 100 651 1933

Grant 269 1932 M M Wintrobe Johns Hopkins Hospital \$250 vertebrate red corpuscles Wintrobe M M Variations in the Size and Hemoglobin Content of Erythrocytes in the Blood of Various Vertebrates *Folia haematologica* 51 32 1933 Wintrobe M M and Shumacker H B, Jr Comparison of Hematopoiesis in the Fetus and During Recovery from Pernicious Anemia *J Clin Investigation* 14 837 1935

Grant 276 1933 Jessie L King Goucher College Baltimore \$75 effect of cortical extract on suprarenalctomized rats. See grant 391 1935

## B ACTIVE WORK STILL IN PROGRESS

Grant 218, 1931 Clayton J Lundy Rush Medical College, Chicago \$1,000 toward making animated motion pictures of the actions of the heart in health and in disease. See description of film showing normal heart action in THE JOURNAL, Dec 23 1933, page 2078 Honorable Mention Scientific Exhibit, A M A 1933

Grant 254 1932 J Lisle Williams McCormick Institute Chicago \$200 decreased dextrose tolerance in acute infectious diseases

Grant 277 1933 Gustav Zechel University of Illinois \$260 study of growing malignant cells by moving photomicrographs, Zechel G A Timing Device for Taking Motion Pictures *Science* 81 23 1935

Grant 286, 1933 F H Pike Columbia University, \$600 the effects of successive experimental lesions of the nervous system

Grant 287 1933 Thomas D Masters Springfield Hospital Spring field \$100 available dextrose in certain common foodstuffs

Grant 297, 1933 Erma A Smith Iowa State College \$150 effect on the rat of sublethal amounts of illuminating gas Smith Erma McMillan E and Mack Lillian Factors Influencing the Lethal Action of Illuminating Gas *J Indust Hyg* 17 18 1935 Williams I R and Smith Erma Blood Picture Reproduction and General Condition During Daily Exposure to Illuminating Gas *Am J Physiol* 110 611 1935

Grant 308 1933 John L Ulrich Johns Hopkins University \$250, the reflex system in the cat

Grant 309 1933 Carroll L Birch University of Illinois \$300, assay of urine for sex hormone of the anterior pituitary

Grant 310 1934 Lay Martin Johns Hopkins University \$150 study of gastric juice

Grant 314 1934 Bernard Fortis Michael Reese Hospital Chicago \$300 immune reactions of Flexner Johling rat tumor

Grant 317 1934 M D Overholser University of Missouri, \$300 experimental growths in genital tract of monkeys and relation of anterior hypophysis to diabetes Nelson W O and Overholser Milton D Effect of Oestrin Injections upon Experimental Pancreatic Diabetes in the Monkey *Proc Soc Exper Biol & Med* 32 150 1934

Grant 322 1934 W J Nungester, Northwestern University, \$130 the effect of muenin on infection

Grant 324 1934 William deB MacNider University of North Carolina \$285 study of artificial circulation in the kidney

Grant 327 1934 Timothy Leary Office of Medical Examiner, Boston \$800 for study of cholesterol atherosclerosis in rabbits

Grant 333 1934 Arthur J Geiger and Louis S Goodman Yale University \$250 study of antianemic principle. (See also grant 340 1934 and grant 382 1935) Goodman L S Geiger A J and Claihorn L N Antianemia Potency of Liver After Gastrectomy in Swine *Proc Soc Exper Biol & Med* 32 810 1935

Grant 336 1934 Charles H Frazier University of Pennsylvania \$751 autonomic representation of the urinary bladder in the cerebral cortex and in hypothalamus

Grant 337 1934 James L O Leary Washington University \$245 Loven reflexes

Grant 338 1934 W W Brandes Baylor University \$150 the effect of acidosis on antihodies and resistance to infection

Grant 340 1934 Louis S Goodman and Arthur J Geiger, Yale University \$200 further study of antianemic principle. See grants 333 1934 and 382 1935

Grant 341 1934 Ludwig A Emge Stanford University \$500 pregnancy and tumor growth. See grants 313 1934 and 365, 1935

Grant 342 1934 S S Lichtman Mount Sinai Hospital New York \$400 hile salt metabolism in liver disease

Grant 343 1934 John Guttman Post Graduate Medical School and Hospital New York \$400 relation between electrical disturbances in cochlea and the sensation of hearing

Grant 344 1934 Paul L Day and W C Langston University of Arkansas \$300 effect of withdrawal of vitamin G from diet of monkeys

Grant 345 1934 Emile Holman Stanford University \$400 study by Frederic Fender of prolonged stimulation of the nervous system. See grant 377 1935

Grant 346 1934 William Antopol Mount Sinai Hospital New York \$250 relationship of acetylcholine to carbohydrate metabolism Tuchman L Schiffrin A and Antopol W Blood Amylase Response to Acetyl Beta Methylcholine Chloride in Pancrectomized Dogs *Proc Soc Exper Biol & Med* 33 142 1935



## 3 DISCONTINUED (NO RESULTS PUBLISHED)

Grant 247 1932 Wilson D Langley University of Buffalo \$250 for work on the formation of acetone bodies in diabetic animal tissue

Grant 259 1932 Daniel A McGinty Emory University \$150 for study of lactic acid dextrose and oxygen absorption and carbon dioxide production by heart muscle (refund \$125 49)

Grant 266 1932 Herbert S Landes Loyola University Chicago, \$400 for study of the mechanics of residual urine (refund \$186 89)

Grant 357 John H Foulger University of Cincinnati \$500 for study of marrow stimulants in the gastric contents of the hog (refund \$424 95)

## TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ending December 31, 1935

Reserve Invested as at December 31, 1934	\$2 224 780 64	
Less Bonds Called	134 365 95	\$2 090 414 69
Balance for Investment December 31 1934	\$ 63 270 40	
Interest on Investments	83 793 04	147 063 44
Invested and Uninvested Reserve as at December 31 1935		<u>\$2 237 478 13</u>

## DAVIS MEMORIAL FUND

Balance Fund December 31 1934	\$6 773 03	
1935 Interest on Bank Balance	136 13	
Total Fund as at December 31 1935 on Deposit		<u>\$ 6 909 16</u>

HERMAN L KRETSCHMER, Treasurer

## AUDITOR'S REPORT

January 29, 1936

To the Board of Trustees,

American Medical Association, Chicago, Illinois

Dear Sirs

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois as at December 31, 1935, and of the Income Account for the year 1935. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence and obtained information and explanations from officers and employees of the Association, we also made a general review of the accounting methods and of the operating and income accounts for the year but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enumerated in the index appended hereto.

In our opinion, based on such examination, the accompanying Balance Sheet and relative Income Account fairly present the position of the Association as at December 31, 1935, and the result of its operations for the year ended on that date, subject to the following qualifications and observations:

(1) The inventories of Materials Supplies and Work in Progress in the amount of \$71,530 59 are stated in accordance with affidavits sworn to by responsible officials of the Association and have not been confirmed by us in any way.

(2) In accordance with the established practice of the Association, no provision has been made for (a) accrued interest on bonds, (b) membership dues unpaid (c) accrued salaries and wages, (d) accrued property taxes for the year 1935, and (e) accrued legal fees.

(3) Subscriptions paid in advance represent an estimated amount based on cash received for subscriptions for the year 1936, received in the month of December 1935. This conforms with the method used in prior years.

(4) Advance payments on publications represent an estimated amount of prepaid subscriptions to Hygeia \$124 003 05 plus \$22 858 00 received in advance for January advertising and directory sales and service.

(5) No liability has been set up for construction work on that portion of the new addition to the Association building which had been completed in accordance with the architect's certificate but unpaid for as at December 31 1935, to the extent of \$31 500 00.

Under date of August 15, 1934 the Association property was appraised by the American Appraisal Company. The value of the property as shown by the appraisal was considerably in excess of the book value of the property. It was decided by the Board of Trustees not to place the appraisal value on the books of account. As recommended by the appraisal company the rates

of depreciation now used are  $2\frac{1}{2}\%$  on buildings and 5% on machinery and equipment calculated on the diminishing book values.

We have received a letter from Messrs Loesch, Scofield, Loesch and Burke acting as attorneys for the Association, stating that at December 31, 1935, the only lawsuit pending against the Association was one filed by Charles R Wiley et al on or about the 14th day of September, 1935, in the amount of \$300,000 00 for alleged libel. The attorneys for the Association state in their letter that "basing our opinion upon the experience of the past thirty years we express confidence in defeating this action." We have also received a certificate from an official of the Association stating that at December 31, 1935, there were no contingent liabilities except the lawsuit here referred to.

Fidelity insurance is carried against the undermentioned officers and employees of the Association in the amounts here stated:

Dr Olin West, General Manager	\$10 000 00
Dr Herman L Kretschmer Treasurer	10 000 00
E C Shelly Cashier	10 000 00
E A Hoffman Assistant Cashier	2 000 00
Sundry Employees (eight \$1 000 00 each)	8 000 00
Total Fidelity Insurance	<u>\$40 000 00</u>

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co

## INDEX TO STATEMENTS

	Exhibit
Balance Sheet as at December 31 1935	A
Income Account, for the year ended December 31 1935	B
Journal Operating Expenses, for the year ended Dec 31 1935	1
Association and Miscellaneous Expenses for the year ended December 31 1935	"2"

## EXHIBIT A

## BALANCE SHEET AS AT DECEMBER 31 1935

ASSETS		
Property and Equipment (at cost less depreciation)		
Real Estate and Building		\$ 699 225 92
Machinery		98 415 82
Type and Metal		13 041 69
Furniture and Equipment		54 267 69
Chemical Laboratory		2 613 22
Total Property and Equipment		<u>\$ 867 564 34</u>
Investments (at cost)		
U S Government Securities	\$1 153 910 56	
Railroad Municipal and Other Bonds	936 504 13	2 090 414 69
Cash held by Treasurer for Investment		147 063 44
Cash in Banks and on Hand		488 032 69
Accounts Receivable		
Advertising	\$47,803 53	
Co-operative Medical Advertising Bureau	11 944 37	
Reprints	3 651 11	
Miscellaneous	4 901 24	68 300 25
Inventories of Materials Supplies and Work in Progress		71 530 59
Expenditures on Publications in Progress		85 798 99
Prepaid Expenses—Insurance etc		2 397 58
Total		<u>\$3 821 102 57</u>
LIABILITIES		
Accounts Payable		
Co-operative Medical Advertising Bureau	\$ 11 552 38	
Miscellaneous	260 23	
		<u>\$ 11 812 61</u>
Subscriptions paid in Advance		103 765 15
Advance Payments on Publications		146,861 05
Advance Payments on Exhibit Space		8 965 00
Net Worth		
Association Reserve Fund	\$ 250 000 00	
Building Reserve Fund	750,000 00	
Capital Account		
Amount thereof as at December 31 1934	\$2 438 312 41	
Net Income for the year ended December 31 1935	111 386 35	2 549 698 76
Net Worth as at December 31 1935		<u>3 549 698 76</u>
Total		<u>\$3 821 102 57</u>



EXHIBIT 'B'  
INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1935

## JOURNAL

Gross Earnings		
Fellowship Dues and Subscriptions	\$ 601,559 31	
Advertising	767 231 17	
Jobbing	98 624 68	
Reprints	4,480 11	
Books	9 811 03	
Insignia	5,964 21	
Miscellaneous Sales	5,673 37	
Interest	128 31	
Gross Earnings from Journal	\$1 493 472 19	
Operating Expenses—Schedule "I"	888 799 50	
Net Earnings from Journal	\$ 604 672 69	
Miscellaneous Income		
Rents	\$ 1 200 00	
Sundry Publications	3 606 00	4,806 00
Association Income		
Income from Investments	\$ 83,493 04	
Miscellaneous Income	3 590 66	86 883 70
Gross Income	\$ 696 362 39	
Association Expenses—Schedule 2	\$409 679 18	
Miscellaneous Expenses—Schedule 2	175 296 86	584 976 04
Net Income	\$ 111 386 35	

SCHEDULE "I"  
JOURNAL OPERATING EXPENSES  
FOR THE YEAR ENDED DECEMBER 31, 1935

Wages and Salaries	\$428 213 34
Editorials, News and Reporting	10 867 15
Paper—Journal Stock	198 963 16
Paper—Miscellaneous	3 794 78
Electrotypes and Engravings	14 893 14
Binding	1 223 46
Ink	6 828 73
Postage—First Class	37 395 84
Postage—Second Class	54 606 00
Journal Commissions	15 379 58
Collection Commissions	714 04
Discounts	28 699 77
Express and Cartage	5 324 91
Exchange	2 530 17
Office Supplies	4,537 61
Telephone and Telegraph	3 877 70
Office Jobbing	13 021 70
Power and Light	7 660 04
Factory Supplies	10 300 92
Repairs and Renewals—Machinery	7 950 03
Miscellaneous Operating Expenses	22 680 83
Losses on Bad Debts and Sales of Equipment	622 23
Total Journal Operating Expenses before Provision for Depreciation	\$880 077 13

## Depreciation on Equipment (Computed on diminishing balances)

Machinery	% 5 \$5 179 78
Furniture and Equipment	% 5 2 438 77
Factory Equipment	% 5 417 42
Type	% 5 312 38
Metal	% 5 374 02
	8 722 37

## Total Journal Operating Expenses

\$888 799 50

SCHEDULE "2"  
ASSOCIATION AND MISCELLANEOUS EXPENSES  
FOR THE YEAR ENDED DECEMBER 31, 1935

Association Expenses	\$114 631 88
Association	20 598 98
Health and Public Instruction	43 188 54
Pharmacy and Chemistry	23 727 06
Chemical Laboratory	80 110 81
Medical Education and Hospitals	4 206 64
Therapeutic Research	33 406 96
Legal Medicine and Legislation	20 423 45
Bureau of Investigation	34 952 73
Bureau of Medical Economics	15 376 34
Food Committee	15 000 96
Physical Therapy	3 917 28
Bureau of Association Exhibits	137 55
Laboratory Depreciation (5% on diminishing balances)	
Total Association Expenses	\$409 679 18
Miscellaneous Expenses	
Insurance and Taxes	\$ 15 301 32
Legal and Investigation	6 887 32
Building Expenses	29 325 88
Building Depreciation (2.5% on diminishing balances)	9 828 40
Fuel	6 592 11
Sundry Publications	107 361 83
Total Miscellaneous Expenses	\$175 296 86

## REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association

The Judicial Council has had but one interim meeting during the last year. This does not mean that the number of problems brought by individuals and organizations is decreasing but that these problems are in most part similar to those already considered by the full council and can be handled through correspondence by the secretary or chairman. In fact, there has been a very large correspondence on ethical subjects.

COOPERATION WITH COUNCIL ON MEDICAL  
EDUCATION AND HOSPITALS

Certain recommendations made in the last annual report of the Judicial Council and approved by the 1935 House of Delegates to the end that closer cooperation between the Judicial Council and the Council on Medical Education and Hospitals be developed have been complied with. The chairman attended a meeting of the Council, explained the need for closer study between the councils, and was assured that the desire of the House of Delegates would receive sympathetic compliance. The Judicial Council believes that the way thus has been opened for classification of and assistance in some of the problems of the general medical profession which come before it for advice, assistance and decision.

An instance illustrative of the need of joint consideration has recently arisen in which a state legislature has passed a law admitting patients to state medical institutions on certificate of osteopaths, which matter is now under consideration. The proposal for treatment of the patients in such state institutions by osteopaths on an equality with such responsibility as heretofore has been assigned only to doctors of medicine may not be many years removed. The problem of maintaining the quality of professional service now given these patients against degradation or dilution of quality of medical care by the mixing of low standard osteopathic practice with scientific practice will then arise, as will also the same problems with respect to the education of medical students in the university and the training of interns in the hospitals connected with it. In those states where such proposals appear to be under consideration, every effort of the doctors of medicine should be made to prevent action so disastrous to the welfare of the people of the state as a lowering of the quality of medical care. It would hardly seem possible that the people of any state through its legislature would by choice lower the quality of medical service available to its wards in its state institutions below that now easily obtainable. It would seem hardly possible that a state would desire to educate its medical students in theories and practices proved unsound by world wide scientific study. It is even less conceivable that any young man desiring a real and scientific education would knowingly choose such a school with its consequent modification of his privilege to enter licensed practice in another state either through reciprocity or by examination. Another deterring factor to the prospective student would at once arise in the question as to the approval of a hospital operated in connection with such a school as a proper institution for intern and resident training.

## PATENTS

The matter of patenting medical remedies and appliances was investigated some five years ago by the Judicial Council to determine the advisability of a change in the present ethical rule. As a result of opinions obtained from all sections of the country from recognized medical leaders and through its own deliberations, no essential change was recommended to the House of Delegates, although current procedures in many instances were considered far from satisfactory. The subject is at present under investigation by a committee representative of national organizations similarly interested. The American Medical Association has been invited to cooperate to the extent that its Judicial Council for mutual enlightenment and benefit discuss the medical point of view with this committee. A satisfactory solution for this aggravating problem may not be evolved, but

it is gratifying to have recognized that medicine has a similar difficult problem as other professions and to be asked to furnish such experience and assistance as may be of benefit to the whole group

#### CHARGES AND TRIALS

Repeatedly the Judicial Council has called attention to the necessity of closely following proper procedure in the conduct of trials based on charges against members of component and constituent organizations and of the necessity of coordinating the governing by-laws of the state association and its component societies. Apparently the many warnings have not reached the ears of the officers and controlling boards of many state and county societies responsible for action. An example of this disregard for legal principles and constitutional procedure involved a case of such prominence that the decision of the Judicial Council was published in full in a recent issue of *THE JOURNAL*. It must be remembered that the Judicial Council is in no position to judge of the facts involved in any local trial, that it has no knowledge of the facts developed at the trial except a written transcript of the trial, which almost invariably is so incomplete and confused as to inspire serious question as to its value, and that it has no opportunity to review the results of cross examination and therefore is very properly barred by the constitution from consideration of the facts and testimony as to facts except as related to law and procedure under which a given trial is conducted. It must also be remembered that orderly procedure and common legal principles are the right of and a protection to innocent and guilty alike. The Judicial Council refrains from taking advantage of technicalities either for or against accused but seeks to judge fairly on the principles underlying them. The Judicial Council recommends that the delegates from state associations bring this portion of its report to the serious attention of the responsible administering officers and boards of the societies they represent.

#### GROUP HOSPITALIZATION

Group hospitalization and individual hospital insurance plans have been rapidly spreading during the last few years as an effort on the part of hospitals to collect full payment for the hospitalization of people of low income groups who in the past have been and in the future will otherwise be unable to pay their hospital costs. This effort has been accentuated by the recent increase in the numbers of such cases combined with a great reduction in hospital income from endowment funds and public contributions. It is an effort at self preservation and secondarily to fix responsibility on a group that during the depression has been rapidly growing among those who have little sense of personal responsibility and rather expect government or charity to care for their needs. Hospital insurance as an economic device now exists almost nationally and is spreading. The American Hospital Association and various state hospital associations are actively promulgating it.

Whether the scheme is or is not financially or economically sound is not the problem of our organization, but it is our business to see that the furnishing of medical service is not included in the sale of insured hospital accommodations. This can be done if a strong stand is taken and maintained by the organized medical profession which must keep a watchful eye to see that medical care is not initially or later included when the usual sales efforts demand increased benefits to purchasers. It is well known that at the present time independently of the hospital insurance movement various hospitals are invading the field of the practice of medicine sometimes at and sometimes against the desire of the members of our profession involved in such instances. It would seem that in this time of extensive changes in hospital economics the point had arrived at which further marriages between hospitals and staff physicians that make the doctor of medicine the servant of the hospital should be stopped and a series of attempts at divorce among marriages that have already taken place should be instituted. Our accepted ethical principles are adequate at the present time and the cooperation of the Council on Medical Education and Hospitals would be of invaluable assistance. It is not an impossible task

but will need a militant local and national ethical spirit behind it and a frowning on those individuals in the profession who on personal grounds do not object to the gradual subjugation of the medical profession in the growth of hospital domination.

#### ASSOCIATION WITH CULTS

There are several general ethical principles underlying cult practice in its relation to medical practice as carried out by doctors of medicine. Primarily the basis for an ethical code is the well being of the people at large, who are dependent on the profession of medicine for their health. The profession of medicine is the custodian of the accumulated knowledge in medicine and should use it for the benefit of humanity. This knowledge, technical in nature and developed by experience, can be interpreted to the body of the people only by persons educated to understand it and trained to apply it. Of all those professing to heal the sick only the doctor of medicine has sufficient education and training to make use of the information already accumulated and keep abreast of that being developed continuously. We grant that even though this is true no one is compelled to choose only from this group in selecting his medical attendants. The individual may elect to receive his medical care from himself, his neighbor, osteopathy, chiropractic, naturopathy or Christian science, but he is not entitled while under the care of such irregulars to demand that the man educated in scientific medicine furnish opinion and advice to one so far deficient in education that he cannot so understand and apply that opinion and advice as to be able to make satisfactory use of it. Such degrading consultation would cheat the patient out of that which he might expect and the subsequent failure of results bring discredit on the science of medicine. If this is true of the occasional individual consultation, how much greater must it be in the case of repeated or continual miscegenation!

The Judicial Council is in receipt of much correspondence attempting to justify if not to advocate consultations between doctors of medicine and chiropractors, osteopaths, Christian scientists and other cultists and irregular practitioners, also appearance before their societies teaching in their schools, and their admittance to hospital practice on a parity with the medical profession. The universal argument for all the procedures mentioned is based on the false premise "to work them gradually into regular medicine." One of our principles of ethics is as follows: "The obligation assumed on entering the profession

demands that the physician use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness." Such specious argument as mentioned above seems to the Council to lack substance and be unreal. It seems impossible that knowledge gained through years of scientific laboratory work and teaching can be assimilated by those of less preliminary training and use of scientific methods of investigation and practice ever to fit them to enter a profession the dignity and honor of which, the standards and sphere of influence of which, we are obligated to uphold, exalt and extend for the service the profession can render to humanity. We further are of the opinion that it is just as impractical to suggest that the small percentage of cult practitioners will through close relationship with the membership of our profession be raised to our professional standards as it is to expect the few rot-speckled apples in the apple barrel to become whole because of the preponderance of sound ones. We believe in continuous, complete separation between the true and the specious physician. Our traditional responsibility for the dissemination of sound scientific treatment for the people and for protection against the insidious influence of the weaker among our own is ever present. If and when the time comes that government through legislation places the cultist on the same legal plane with us we must strive to maintain the aristocracy of learning and culture. A physical and professional separation as complete as is possible should be established and maintained.

Respectfully submitted

GEORGE EDWARD FOLLANSPEE Chairman  
WALTER F. DONALDSON  
JOHN H. O'SHEA  
LLOYD T. NOLAN

## COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

*To the Members of the House of Delegates of the American Medical Association*

### I RESOLUTIONS OF THE HOUSE OF DELEGATES

1 The House of Delegates at the Cleveland session adopted the following resolution

*Resolved* That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement

The Council has brought this resolution to the attention of all hospitals approved for intern training and it is planned to check staff memberships in connection with all the inspections of hospitals engaged in training interns. In this manner the Council will ascertain to what extent hospitals have complied with the foregoing resolution

2 In its report at Atlantic City last year the Judicial Council referred to the improved methods of administering the Principles of Medical Ethics. It was stated that while each member of the American Medical Association, whether in hospitals, in universities, in clinics or in private practice, is at all times subject to the ethics of the profession, the hospital university or clinic as an entity is not and that by concerted action between the Council on Medical Education and Hospitals and the Judicial Council many harmful and obnoxious practices would cease and others, not now presenting any large problem, would be prevented

For the purpose of carrying out the recommendation of the House of Delegates, the secretary of the Council on Medical Education and Hospitals has appeared before the Judicial Council and the chairman of the Judicial Council has met with the Council on Medical Education and Hospitals and it has been agreed that the latter council, in connection with its regular inspections, will secure such additional information regarding certain phases of hospital practice as may be requested by the Judicial Council

3 A considerable number of resolutions have been brought before the House of Delegates requesting the Council to stimulate among the medical schools greater interest and greater activity in the teaching of economics as applied to the practice of medicine. In cooperation with the Bureau of Medical Economics, a very considerable amount of material bearing on this subject has been sent to the library of each recognized medical school and a questionnaire has been formulated to determine the place occupied by economics in the medical curriculum. However, personal conferences with deans and others have indicated that in most schools it is difficult to find a member of the faculty, or any one outside the faculty, who is sufficiently familiar with the problems of medical economics to present to the students a satisfactory discussion of this subject. Merely to add extra hours, labeled economics, to the curriculum and to require students to attend dull or perfunctory lectures would serve no useful purpose and it seems to be evident that teachers will have to be specially trained for this purpose before worthwhile courses in economics will be generally available

### II ACTIVITIES OF THE COUNCIL

4 (a) The survey of medical schools which was undertaken two years ago is, so far as inspections are concerned, nearly completed. Eighty-seven medical schools in the United States and Canada have been visited. The two remaining institutions will be covered before the end of the school year. The Council is now engaged in analyzing and tabulating material that has been obtained, and while there is a great deal of work to be done in the course of preparing a complete report on this survey certain facts are already evident. During the past ten years owing in part to the increasing number of applicants and in part to financial pressure, some schools have increased their enrolment beyond the numbers to which they are prepared to give adequate instruction. While in certain cases the physical plant may be inadequate and in other cases the teaching staff is insufficient, the most generally observed deficiency is a lack

of clinical material or a lack of satisfactory control over the clinical facilities that can be utilized

In the early years of the Council's supervision of medical education, it was categorically stated that no medical school could be properly conducted that did not have a substantial income apart from students' fees and as a result most of the schools developed other sources of support. Recently, as the result of increasing costs and diminishing incomes, schools are now operating on a budget of which the income is derived solely, or almost solely, from students' fees. Some institutions have even gone further and are contributing substantially from their own income to the general upkeep of the university

(b) In connection with the survey, the Council undertook to visit the schools of osteopathy, but the Associated Colleges of Osteopathy promptly refused to allow representatives of the Council to make any inspection of their institutions. If these schools limited themselves to the teaching of osteopathy, such an attitude might be warranted, but since in many states the osteopaths have demanded or have obtained the unrestricted right to practice medicine, it would seem that the public is entitled to know whether their claim to teach medicine is or is not well founded

(c) To aid in the study of the material obtained in our survey of medical schools and in the formulation of conclusions therefrom, the Council has invited the cooperation of five consultants prominent in the field of medical education who, for the sake of convenience, have been designated the "Blue Print Committee," and who meet from time to time with the Council

5 (a) The annual census of hospitals for 1935 was published in THE JOURNAL of March 7. The cordial cooperation offered by the hospitals is indicated by the fact that reports were received from 96 per cent of all hospitals, representing 99 per cent of the entire bed capacity. The list of registered hospitals contains 6,246 names, a decrease of 88 over 1934. The number of beds, however, has increased by 28,249, so that the total is 1,076,350. Admissions during 1935 were 7,709,942, an increase of 562,526 over 1934. The daily average number of patients was 876,689, an increase from the preceding year of 46,591

(b) During 1935, the Council's staff of hospital examiners made the following visits of inspection

<i>Hospitals</i>	
For internship approval	197
For residency approval	31
Tuberculosis sanatoriums	91
Small hospitals for registration	163
Under 25 beds	130
Over 25 beds	33
	<hr/> 482
<i>Technical Schools</i>	
Schools for laboratory technic	65
Schools for physical therapy technicians	7
Schools for occupational therapy technicians	5
	<hr/> 77
Total inspections	559

(c) In the last eight years about 3,000 different hospitals have been visited one or more times by the Council's inspectors. During 1931 and 1932 more than 600 mental hospitals were visited. In 1933, 1934 and 1935 nearly 600 hospitals for the treatment of tuberculosis were examined. In the past four years, at the suggestion of the House of Delegates, our examiners have also visited over 600 small hospitals. These last are a part of a group of more than 2,000 hospitals on the Register which have never been personally visited either by the Council or by any other organization

6 (a) As reported last year, the examination of schools of occupational therapy has been completed, but since the educational standards adopted by the House of Delegates are to be effective not later than Jan 1, 1939, it seemed best to defer the annual classification of schools until that time. In the meanwhile, the St Louis School of Occupational Therapy, the Philadelphia School of Occupational Therapy, Milwaukee Downer College, and the University of Toronto School of Occupational Therapy have already satisfied the requirements. Other schools are in process of meeting them

(b) The visiting of schools for the training of technicians in physical therapy has been completed and an outline of standards for such institutions will be submitted to the House of Delegates for its approval at the current session

(c) The survey of schools for the training of technicians in clinical laboratories is very nearly completed. One hundred and eighty-seven schools have been inspected and fifteen remain. As soon as appropriate standards for these schools can be formulated, they also will be submitted to the House of Delegates for its approval.

7 In accordance with the instructions of the House of Delegates formulated at the Milwaukee session, the Council has during the past year expressed its approval of examining boards in the following specialties: dermatology and syphilology, orthopedic surgery, pediatrics, psychiatry and neurology, and radiology. Physicians who have obtained the certificate of these boards will receive a special designation in the forthcoming edition of the American Medical Directory.

8 *Publications*—(a) The Council has contributed during the past year to special numbers of *THE JOURNAL* as follows:

Educational	Aug 31 1935
Clinical pathology	Oct 26 1935
Tuberculosis	Dec 7 1935
Radiologic	Feb 22 1936
Hospital	March 7 1936
State Board	April 25 1936

(b) A report of the Council's study of hospitals and sanatoriums for the treatment of patients with tuberculosis, prepared by Dr F H Arestad, was published in *THE JOURNAL* and reprints were widely distributed both in this country and abroad. Favorable comment was received from many sources. Copies of this report were sent to the members of the House of Delegates.

(c) The Council has compiled and published a revised edition of the booklet entitled "Approved Colleges of Arts and Sciences and Junior Colleges." This pamphlet, although it contains only information which is also published by the Office of Education in the United States Department of the Interior at Washington, is greatly in demand because the material is so much more conveniently arranged.

(d) As customary, the Council has been responsible for supplying to the Directory Department revised information concerning hospitals, medical schools and examining boards.

(e) The booklet "Laws and Board Rulings Regulating the Practice of Medicine in the United States of America and Abroad," last revised in 1933, has been discontinued in its present form. The abstracting of state laws can perhaps be more efficiently carried out by the Bureau of Legal Medicine, and the records of state medical boards are for the most part so inadequately reported to us that it would not seem to be worth while to publish information which we know to be incomplete and in some cases unreliable.

9 The Thirty-Second Annual Congress on Medical Education, Medical Licensure and Hospitals was held at the Palmer House in Chicago, Feb 17 and 18, 1936. Included in the program were a paper on "The Accrediting of Higher Institutions" by Dr George F Zook, president of the American Council on Education; a symposium on the "Scope and Objectives of the Undergraduate Teaching of Obstetrics," and a group of papers dealing with the social responsibilities of the physician. The attendance at the congress cannot be estimated but there were 320 who registered as delegates. Seventy-three medical schools and twenty-two state licensing boards were officially represented.

### III RECOMMENDATIONS

10 Now that the survey of undergraduate medical schools is nearly complete the Council has voted to undertake a survey of the graduate training of physicians. In this field there is naturally much more variety of aim and method than in undergraduate teaching. Roughly, graduate courses may be regarded as designed either for the training of specialists or for the improvement of practitioners. Under the former heading opportunities may be further subdivided consisting of systematically arranged courses, including especially courses in those fundamental sciences which are prerequisite for satisfactory development in a specialty, and apprenticeships in which the

student obtains actual clinical experience by assuming greater responsibilities in connection with the care of patients in a hospital, a dispensary or a physician's office. The second objective, namely, the improvement of practitioners, is achieved by means of instruction at many different levels ranging all the way from attendance at meetings of the county society or a hospital staff to a prolonged course of study in some graduate or postgraduate institution. This sort of instruction can also conveniently be classified under two main headings: first, those courses of instruction offered by recognized institutions in large centers of population with abundance of clinical material and, second, what may be called extension courses, in which the instruction is carried to the physician in or near his own home by selected teachers operating under the direction of the educational committee of the state society or some similar organization.

11 The work imposed on the Council in connection with the visiting of hospitals for the purpose of appraising the training of interns and residents in connection with the educational requirements of an increasing number of special examining boards, in the visiting of small hospitals as requested by the House of Delegates, and in the supervision of schools for the training of technicians for occupational therapy, physical therapy and laboratory diagnosis, has grown so rapidly in recent years that the present staff of the Council cannot satisfactorily discharge all the responsibilities laid on it. It would seem to be necessary, therefore, to add to our force an additional hospital inspector.

Respectfully submitted

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

RAY LYMAN WILBUR, Chairman  
MERRITTE W IRELAND  
CHARLES E HUMISTON  
FREDERIC A WASHBURN  
J H MUSSER  
FRED MOORE  
REGINALD FITZ  
WILLIAM D CUTTER, Secretary

### REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

*To the Members of the House of Delegates of the American Medical Association*

The work of the Council on Scientific Assembly during the past year has proceeded along the usual lines, and all matters that have come within its province have received official attention.

The regular annual Conference of Section Secretaries with the Council on Scientific Assembly was held in Chicago, Dec 16, 1935, and the usual arrangements for the official program of the annual session were made. A Session on Tuberculosis will be held in the Section on Miscellaneous Topics.

A splendid program has been prepared for the General Scientific Meetings to be held on Monday and Tuesday, May 11 and 12. Two distinguished foreign physicians, Lord Horder of London and Dr Amaral of São Paulo, Brazil, will participate in this program as invited guests.

At the Atlantic City session in 1935 a resolution introduced by Dr J Richard Kevin, delegate from New York, proposing that a Committee on Medicolegal Blood Grouping Tests be organized, was referred to this council. A committee has been appointed to study the general subject involved and, in due time, will submit a report to the House of Delegates.

Respectfully submitted

IRVIN ABELI, Chairman  
CYRUS C STURGIS  
FRANK H LAHEY  
JAMES E PAULLIN  
ALFRED A WALKER  
J TATE MASON, President-Elect  
MORRIS FISHERMAN  
Editor, *THE JOURNAL*  
OLIN WEST, Secretary

} Ex officio

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 4, 1936

## ETIOLOGY OF AMYLOID DISEASE

The etiologic mechanism in amyloid disease is not yet entirely clear, several theories have been proposed. Among the more important of these, according to Eklund and Reimann,<sup>1</sup> are (a) a general disturbance of protein metabolism, (b) an antigen-antibody union and precipitation, (c) an absorption of protein, (d) a disturbance or abnormality of the reticulo-endothelial system, (e) hyperglobulinemia, and (f) hyperproteinemia and disturbance of the reticulo-endothelial system. The first theory has received experimental support from several sources and relatively recently in the work of Grayzel and his co-workers.<sup>2</sup> Amyloidosis was produced in albino mice by subcutaneous or intramuscular injections of a 5 per cent aqueous suspension of sodium caseinate. Comparative studies indicated that a well balanced, thoroughly adequate diet retarded the production of amyloidosis. The investigators concluded, therefore, that amyloidosis is probably the result of an endogenous protein metabolic disturbance. When the rate of formation of these catabolic products exceeds the ability of the tissues to dispose of them, amyloid appears. The theory of antigen-antibody union has been probably the most popular one in Germany. Thus Letterer,<sup>3</sup> who has extensively reviewed the subject and carried out many experiments, believes that the antigen-antibody precipitation occurs within the organ tissue and that the antigen is a homogeneous fused protein. Stoeber,<sup>4</sup> on the basis of clinical observations, finds the histologic relations between amyloidosis and the condition of the reticulo-endothelial system and stellate Kupffer's cells in the liver especially striking. This relationship suggests, he believes, some as yet unknown abnormality of the reticulo-endothelial system as a factor of etiologic significance.

Eklund and Reimann have continued to favor the hyperglobulinemia theory. They investigated the prob-

lem in rabbits observed over long periods. After the blood protein level had been determined in five rabbits, each animal was given an intramuscular injection of 5 cc of a 10 per cent solution of sodium caseinate three times a week. Injections were continued until shortly before death. Two rabbits were kept as controls in similar cages and were given similar food. The protein content of the plasma was measured weekly during the first four months and then twice a month. The albumin and globulin values of the blood were determined by the method of Medes and the fibrinogen value by the method of Cullen and Van Slyke. Necropsy was performed immediately after death in each case, and sections of tissue were tested with aqueous solution of iodine and double-normal sulfuric acid, congo red and methyl violet. The rabbits were observed until death from amyloidosis occurred. It was not possible to determine when amyloid was first deposited. The changes in the blood protein content observed in each of the rabbits were remarkably uniform. The globulin content in each case rose above the normal level approximately two weeks after the first injection and continued to rise for from four to six weeks thereafter, at which time the amount was from two to four times the normal value. It remained at those high levels during the first four or five months and then declined but remained above normal until death occurred. The albumin content remained constant though slightly below normal for four or five months and then dropped rapidly until half or less of the initial amount remained. The total protein content rose during the second week, reached its highest level in from four to six weeks, and remained high for four months or more.

Each of the five rabbits studied died with signs and symptoms of uremia caused by extensive amyloidosis of the kidneys. Histologically there was almost complete replacement of the glomerular tufts by a homogeneous substance which gave the characteristic amyloid reaction with methyl violet and Mallory's trichrome stain. Within this substance were a few spindle shaped, compressed remnants of nuclei. The capillary spaces were usually obliterated. The stroma between the glomeruli and the persisting tubules, however, failed to react like amyloid substance.

These experiments showed that constant hyperglobulinemia induced by repeated injections of sodium caseinate preceded the development of amyloid disease in each of five rabbits. The authors believe that these observations lend considerable support to the theory that chronic hyperglobulinemia is an important factor in the development of amyloidosis of the secondary type. If the amount is not too great or too persistent, the excess can be disposed of successfully. Furthermore, experimental studies and clinical observations show beyond doubt that the process is reversible. It is misleading, Eklund and Reimann believe, to attempt to correlate the changes in the blood protein level found

1 Eklund C M and Reimann H A The Etiology of Amyloid Disease Arch Path 21 1 (Jan) 1936  
2 Grayzel H G Jacobi M Marshall H B Bogn, M and Bolker H Amyloidosis Arch Path 17 50 (Jan) 1934  
3 Letterer Erich Neue Untersuchungen über die Entstehung des Amyloids Virchows Arch f path Anat 293 34 (July 21) 1934  
4 Stoeber E Betrachtungen über sog genuine Amyloidose Deutsches Arch f klin med 176 642 (Aug 22) 1934



in advanced amyloidosis with the etiology of the disease. The conditions are different during the incipient period, and the amount of blood protein, especially the globulin, is above normal. In the late stage, when evidence of renal disease is likely to appear, the total protein content is reduced below the normal level because of the marked diminution in albumin.

Although the evidence regarding the etiology of amyloidosis is still conflicting in many respects, the work reported here strongly suggests that chronic hyperglobulinemia is either an etiologic factor or a corollary of amyloidosis itself.

### DIETS OF FAMILIES WITH LOW INCOMES

The economic depression with its inevitable detrimental effects on the food supply of many families has renewed interest in studies of the diets of groups with low incomes. Recently attention was directed in these columns<sup>1</sup> to a survey in which a relation was shown to exist between the weights of children of the depression-poor families and their diminished income. A statistical survey of the diets of families with low incomes has been reported.<sup>2</sup> The data were collected in the spring of 1933 in nine localities, including Baltimore, Birmingham, Cleveland, Detroit, New York, Pittsburgh, Syracuse, a cotton mill area in South Carolina, and a coal mining district in West Virginia. At least 100 white families living in the poorer neighborhoods but not in the "slum" districts in each locality were questioned regarding the kinds and quantities of food purchased during a period of one week. Sufficient data were thus collected to give a general indication of the relative consumption of the various foods or food groups, such as milk, meats, bread, cereals, vegetables and fruits. The families were then classified according to their incomes, and the average quantities of the various foods and food groups were computed for families in each income class in each locality.

The data collected not only bring out a number of interesting tendencies in food selection but also show the existence of a distinct relation between the character of the diet and the family income. Regional differences in the dietaries also were apparent. In the families living in the six Northern cities there was a direct relation between the calories provided in the dietaries and the income. Members of families with a weekly income of less than two dollars per capita obtained an average of only 2,470 calories a day, expressed as "adult male units," and approximately one fourth of this group received less than 2,200 calories a day per adult male unit. These values are decidedly less than the 3,000 calories recommended by some authorities as an adequate daily allowance for the moderately active adult male. As might be expected,

the caloric content of the diet was particularly inadequate in larger families composed of from five to eight members. As the family income increased there was a steady increase to satisfactory values in the daily caloric content of the diet, families with a weekly income of from three to four dollars per capita receiving an average of 3,180 calories daily. In the Southern communities, however, the decided difference between the caloric value of the diets of the various income groups did not appear. Even in families at the lowest income level, the average caloric value of the diet equaled or exceeded the adequate standard. This apparent inconsistency was attributed to the general use of large quantities of fat meat, cereal foods and syrups in the Southern localities.

One of the most noticeable features of the dietaries in all the communities surveyed was the uniform lack of sufficient amounts of milk, vegetables and fruits, according to current standards, and the consistent overuse of meats and fish, eggs and sugary foods. In the six cities studied, the average supply of milk was one-third less than the minimum suggested requirement and the amounts of fruits and vegetables were no more than just equal to the minimum needs. On the other hand, meat and fish, eggs and sugary foods were used in larger quantities than those recommended for an adequate low cost diet. Such a distorted type of dietary is undoubtedly low in calcium and probably does not contain optimal amounts of certain of the vitamins. A further indication of the inadequacy of the diets of families with low incomes lies in the fact that the incidence of sickness was found to parallel the income of the families investigated.

Surveys of this type call attention to the need for a widespread dissemination of knowledge to the poorer classes regarding a more satisfactory manner of choosing foods in order to insure a more nearly adequate diet at a minimum cost.

### CHOLINE AND FAT METABOLISM

The methods available for the study of processes of intermediary metabolism include a wide variety of experimental procedures and materials. One of the most important of these approaches involves the production of a pathologic condition in the normal organism in an effort to infer from the variations that occur what routes the normal metabolic processes probably follow. Frequently clinical material exists which represents deviations from the normal and thus provides valuable supplementary data for interpretation. As the liver is the chief organ concerned with the metabolism of the three principal types of foodstuffs, experimental or clinical alterations in the liver are usually associated with some aberration of a metabolic process. It has long been of interest, therefore, to study instances of pathologic change occurring in the liver in the patient or produced in the experimental animal.

<sup>1</sup> Children of the Depression Poor. Current Comment. J. A. M. A. 105: 1123 (Oct. 5) 1935.

<sup>2</sup> WicHL Dorothy G. Diets of Low Income Families Survey in 1933. Pub. Health Rep. 51: 77 (Jan. 24) 1936.

One of the most striking changes occurring in the liver is increase in the content of fat. The signs of failure of liver function are peculiarly prominent in depancreatized animals, taken together with the state of the liver at postmortem examination these indicate a profound disturbance in fat metabolism. These results in the depancreatized dog were early attributed to an impaired assimilation of fat and led to efforts to augment the digestive powers of these animals by the addition of raw pancreas to their diet. This form of medication produced striking increases in the length of the survival periods of these dogs. Following the discovery of insulin by Banting and Best, it was demonstrated that the depancreatized dog, receiving insulin but no raw pancreas or pancreatic enzymes, could be kept alive and well for two years. These observations suggested that the beneficial effect of raw pancreas in the diet of depancreatized dogs does not depend on the content of digestive enzymes in this tissue. It therefore became of interest to establish the identity of the factor that is essential to the life of depancreatized dogs. The variations which they evidenced in fat metabolism and the importance attached to the phospholipids in this metabolism led to an attempt to substitute lecithin for raw pancreas in the diet of the depancreatized dog<sup>1</sup>. The beneficial results obtained were striking, the symptoms exhibited by the animals and the results of necropsy suggested an improvement in liver function. Furthermore, it seemed likely that an investigation of the effect of lecithin on the deposition of fat in the livers of normal animals might be of interest. Experiments of this type conducted by Best and his collaborators in Toronto and by Channon and his group in Liverpool have provided interesting information regarding fat metabolism and suggestive possible relationships to the transformations in the body which involve protein<sup>2</sup>.

It is a relatively simple matter to produce abnormally high concentrations of fat in the liver experimentally by feeding either cholesterol-containing or high-fat diets to the experimental animal. Using this technique as a method of approach, the Toronto investigators were able to demonstrate that the administration of lecithin could prevent the ordinarily observed increase in the amount of liver lipids. Furthermore, a study of the component portions of the lecithin molecule yielded the striking observation that the prevention of fat deposition in rats and dogs was due solely to the choline present in the lecithin. In addition, results have been obtained which demonstrate that choline not only is effective in preventing the accumulation of liver fat but may also exert a "curative" action when added to the diet of animals whose livers have previously been made high in lipids by simple experimental manipulation of diet. This unique and interesting

property of choline has been termed by Best the lipotropic action of choline.

The discovery that the choline content of the diet exercises a controlling influence on the amount of fat in the liver has provided the means for many investigations into the subject of fat metabolism. One of the most interesting results obtained from the use of this lipotropic action of choline has been the observation by Best and by Channon that the quantity of protein in the diet has a profound effect on the extent to which the action of choline is manifested. This has led to the demonstration that protein per se has a definite lipotropic action, which differs only superficially from that exhibited by choline. It remains for future investigation to determine whether the ability of the protein in the diet to prevent the accumulation of liver fat is to be attributed to an adhering impurity, either choline or choline-like in nature, or whether this interesting property can be assigned to a constituent of the protein molecule. The development of this chapter of fat metabolism is evidence of sound theoretical reasoning and logical experimental investigation. The subsequent information regarding fat metabolism, and the manifold possible relationships to the transformations of protein in the organism, are awaited with interest.

## Current Comment

### SKIN TESTS

With the increasing use of the skin for the detection of various sensitivities<sup>1</sup> it is important to keep in mind that the reactions elicited in the skin give merely a visible record in part at least of the immunologic past history of the patient and per se do not portray a present illness. A correlation between positive tests and the history and observations in the allergic patient is necessary for an accurate diagnosis. The earlier reports of Rackemann and Simon<sup>2</sup> and recently of Grow and Herman<sup>3</sup> of the observations in so-called normal persons are of interest. Grow and Herman find that about 50 per cent of persons without discernible allergic complaint are positive to one or more substances on intracutaneous testing. The question of variations in technique as well as irritability of reagents is a factor of error which they mention. The possible role of fluctuations in nervous, emotional and physiologic activity, as well as the choice of skin area tested have been shown greatly to affect the reactivity to the tests<sup>4</sup>. Certain

1 Rackemann F M. Clinical Allergy—Asthma and Hay Fever. New York Macmillan Company 1931. Coca A F. Walzer Matthew and Thommen A A. Asthma and Hay Fever in Theory and Practice. Springfield Ill. Charles C Thomas 1931.

2 Rackemann F M and Simon F H. Technique on Intracutaneous Tests and Results of Routine Tests in Normal Individuals. J Allergy 6: 184 (Jan) 1935.

3 Grow M H and Herman N B. Intracutaneous Tests in Normal Individuals. J Allergy 7: 108 (Jan) 1936.

4 Bowman Katherine L. Pertinent Factors Influencing Comparative Skin Tests on the Arm. J Allergy 7: 39 (Nov) 1935. Furstenberg F F and Gay L N. Some Observations on the Effect of Circulation on Skin Reactions. J Allergy 7: 101 (Jan) 1936. Alexander, H L. Harter J O and McConnell F S. Observation on the Formation of Wheals. II. Comparison of Wheals Induced by Allergens and by Histamine. Proc Soc Exper Biol & Med 27: 484 (March) 1930.

1 Hershey J M and Soskice Samuel. Am J Physiol 88: 74 (Aug) 1931.

2 The most recent papers in the series are by Best C H and Channon H J. Biochem J 29: 2651 (Dec) 1935. Beeston A W. Channon H J and Wilkinson Harry. Ibid 29: 2659 (Dec) 1935.

investigators prefer to read the doubtful reactions (one plus) as positive, others regard the same responses as insignificant. The differences in resulting interpretations frequently leave the management of the patient in a most unsettled state. A few qualified allergists of wide clinical and technical experience make and read skin tests with judicious restraint and thus properly utilize a diagnostic procedure of unquestionable value.<sup>5</sup> However, the indiscriminate use of skin tests for the solution of puzzling clinical problems is apt to lead physician and patient far afield. Present indications are that developments in clinical allergy will lead in two general directions: either many new and heretofore unconsidered substances will be found allergenic or there will be a distinct swing toward nihilism. Evidence of this is seen in the types of research in the field. One seeks to uncover newer or more refined test materials, the other is engaged in studying the fundamental, underlying immunobiologic mechanism. The much discussed and uncertain ground between idiosyncrasy and allergy also is worthy of further investigation. The lack of agreement between workers in allergy is evidence enough that the personal factor in both physician and patient is in each case to be fully evaluated. Whether the skin test is patch, scratch or intracutaneous, the accuracy of our conclusions must rest in the close correlation of symptoms and course with exposure and withdrawal respectively of the substances incriminated by this method of detection.

## Association News

### ANNUAL GOLF TOURNAMENT AT KANSAS CITY

The American Medical Golfing Association will hold its twenty-second annual tournament at the Mission Hills and the Kansas City Country Clubs in Kansas City on Monday, May 11.

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes gross, the Will Walter Trophy, the Association Handicap Championship, thirty-six holes net, the Detroit Trophy, the Championship Flight First Gross, thirty-six holes, the St. Louis Trophy, the Championship Flight, First Net, thirty-six holes, the President's Trophy, the Eighteen Hole Championship, the Golden State Trophy, the Eighteen Hole Handicap Championship, the Ben Thomas Trophy, the Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy, the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy, and the Kickers' Handicap, the Wisconsin Trophy. Other events and prizes will be announced at the first tee.

#### MEMBERS IN EVERY STATE OF THE UNION

M. M. Cullom of Nashville, Tenn., is president and W. Albert Cook of Tulsa, Okla., and Walt P. Conaway of Atlantic City, N. J., are vice presidents of the American Medical Golfing Association which was organized in 1915 by Will Walter, Wendell Phillips and Gene Lewis, and now totals 1150 members, representing every state in the Union. The living past presidents include Thomas Hubbard of Toledo, Ohio, Fred Bailey of St. Louis, Edward Martin of Media, Pa., Robert Moss of LaGrange, Texas, Charlton Wallace of New York, Will Walter of Chicago and Charlottesville, Va., James Eaves

of Oakland, Calif., D. Chester Brown of Danbury, Conn., Samuel Childs of Denver, W. D. Shelden of Rochester, Minn., Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frank A. Kelly of Detroit, John Welsh Croskey of Philadelphia, Homer K. Nicoll of Chicago and Charles Lukens of Toledo.

#### KANSAS CITY COMMITTEE

The Kansas City Committee is under the general chairmanship of Clarence Capell, Rialto Building, Kansas City, Mo. He will be assisted by E. R. Deweese, Vice Chairman, and L. G. Allen, J. Wallace Beil, C. D. Cantrell, Logan Clendenning, C. C. Denmie, Hugh A. Gestrung, A. C. Griffith, John S. Knight, T. A. Kyner, A. W. McAlester Jr., Virgil W. McCarty, C. R. McCubbin, C. A. McGuire, C. J. Mullen, Paul J. O'Connell, A. J. Rettenmaier, H. M. Roberts, E. Kip Robinson, C. E. Sanders, J. S. Snider, Albert S. Welch and D. A. Williams.

#### TWO COURSES

To accommodate comfortably the large entry that is anticipated, the Kansas City Committee has arranged play over two very fine courses, which touch corners the Mission Hills Country Club and the Kansas City Country Club. Their club houses are only one mile apart and ample transportation between the two has been arranged. Dinner for all players will be served in the Mission Hills Club House.

#### APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the executive secretary, Bill Burns, 2020 Olds Tower, Lansing, Mich., for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 30 is allowed, except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty-second tournament of the American Medical Golfing Association promises to be a happy affair. The officers anticipate that some two hundred medical golfers from all parts of the United States will play.

### MEDICAL TRAP SHOOTERS ASSOCIATION

The American Medical Skeet and Trap Shooters Association has been formed by a group of Kansas City physicians and it is hoped that the organization will be permanent. On the afternoon of May 10 there will be a Skeet and Trap Shoot at Elliott Gun Park.

Trap shoot—fifty sixteen yard targets

Class A, 94 per cent

Class B, 89 per cent

Class C, 84 per cent

Skeet shoot—fifty targets

Class A, 21 to 25

Class B, 17 to 21

Class C, 16 or below

A trophy will be given for each class. Our transportation will leave from the Hotel President at 1 o'clock, May 13. Address all correspondence to Dr. A. W. McAlester III, 2003 Bryant Building, Kansas City, Mo., or to Dr. Dar Stoffer, Professional Building, Kansas City, Mo.

Bring your shotguns as well as your golf clubs.

### RADIO BROADCASTS

The American Medical Association broadcasts over WEAT the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of 'Medical Emergencies and How They Are Met'. The title of the program is 'Your Health'. The program is recognizable by a musical salutation through which the voice of the announcer offers the toast 'Ladies and gentlemen your health'. The theme of the program is repeated each

<sup>5</sup> Alexander H. L. Interpretation of the Skin Test Used in Allergic Disorders. *Journal Lancet* 56:131 (March 1) 1936.

week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

**Red Network**—The stations on the Red network of the National Broadcasting Company are WCAF, WEEL, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOV, WDAF.

**Pacific Network**—The stations on the Pacific network are KGO KPO KFI, KGW KOMO KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

April 7 Let Your Doctor Decide R G Leland M D  
April 14 Summer Camps Morris Fishbein M D  
April 21 Health and the School Morris Fishbein M D

## ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Thirty Second Annual Meeting held in Chicago Feb 17 and 18 1936

(Continued from page 1099)

DR MERRITTE W IRELAND, Washington, D C, in the Chair

### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 17—AFTERNOON

#### The Personal Characteristics of the Teacher

DR JAMES S MCLESTER, Birmingham, Ala. This article will be published in full in the *American Medical Association Bulletin*.

#### SCOPE AND OBJECTIVES OF THE UNDERGRADUATE TEACHING OF OBSTETRICS

##### The Training of Medical Students in Obstetrics

DR GEORGE W KOSMAK, New York. This article will be published in full in *THE JOURNAL*.

#### Undergraduate Education in Obstetrics

DR CHARLES B REED, Chicago. The sentimentalists are maintaining that maternity cases are not getting adequate medical care and that the American mortality and morbidity rate is much higher than in other countries. The charge has not been substantiated. Nevertheless the social theorists and salaried altruists use it freely as an argument for the passage of paternalistic and unconstitutional laws together with a prodigal expenditure of public money. The following statistics, however, from the League of Nations are illuminating.

Mortality and Morbidity 1933

	All Deaths Per 1 000 Population	Infant Deaths Per 1 000 Births	Diphtheria per 100 000 Population	
			Deaths	Cases
Government controlled				
Germany	11.2	76	5.6	114
England and Wales	12.3	63	6.3	117
Scotland		81	7.2	180
No government control				
United States	10.7	59	3.9	39
Illinois	10.5	49	1.7	22

The accusation that maternity cases are not competently managed is a more serious statement which reflects on the teachers in the schools of medicine the curriculums and the character of the teaching. There is some reason to believe that not all colleges offer modern courses of obstetric training. That such a condition does exist is evident from the numerous articles that have appeared in the literature. In 1931 Adair presented a comprehensive study on education in obstetrics. In the same year and as a part of the same White House con-

ference on maternal care, Tindley reported an elaborate scheme for the teaching of undergraduates. So far as can be learned, nothing practical has been done during the intervening years to carry out the valuable suggestions submitted by either man. I propose to suggest a method whereby the quality of undergraduate work can be bettered. This method is a well tested procedure which provides for definite improvement in the care of maternity cases by the general practitioner and facilitates at the same time the growth of specialism. The plan is not new and it can be put in operation anywhere at relatively small expense by a competent faculty. A textbook is essential to success. The books in general use are too large and too verbose. No textbook for the use of students should require more than 500 or 600 pages, if carefully prepared. Several members of the obstetric department at Northwestern University Medical School have made a skeletonized abstract of the modern doctrine in a booklet of about 110,000 words. It avoids futile discussions that are incomprehensible to an undergraduate. This text has been used for years with success. There is no formal lecture, only a quiz. The teacher constantly holds before the students a vision of the high importance of the obstetric art without confusing them with a mass of verbiage and conflicting theories which no one has resolved.

The student is introduced to obstetrics in the last quarter of the second year or whenever the laboratory and basic science courses have terminated. The class should be divided into sections of about forty men and put in charge of a young and enthusiastic member of the department. They learn the textbook thoroughly and recite from it in class. Each section should have at least twenty hours a quarter of this work during each of the four quarters, or eighty hours in all. The student is drilled and redrilled on this fundamental material in a give and take conference.

Late in the junior or early in the senior year the student is assigned to the manikin. He must now visualize the actual mechanics of labor and learn to meet the complications that arise. This degree of skill can be obtained only by familiarity with the instruments employed. The student must feel the instrument in his hands and apply it to the tissues in accordance with its law. It is by practice and only by assiduous practice that he can secure that excellence of judgment, that fine adjustment between the idea and the action which constitutes technic. Practice on the manikin then is, in my opinion, the first and most vital step toward technical efficiency for the student.

Throughout as many quarters as necessary, the class should again be divided into sections of thirty or forty men, who are allotted twelve or more periods of two hours each on the manikin, in which a dead fetus is used. The first hour is spent in listening to a lecture by a senior man in the department, who takes up a given complication of labor, describes the methods of diagnosis, the impending difficulties and the reasons for giving aid together with the indications and conditions that determine the choice of intervention. At the proper moment he illustrates the technic of the operation by slow and careful maneuvers on the manikin and gives the reasons for each act and its difficulties. When the demonstration is finished the lecturer assigns the next topic for study from the manikin textbook. The class is again subdivided into groups of five or six and each group takes its place at a manikin with an experienced instructor from the junior faculty in charge. The student is now required to perform the operation he has just witnessed and repeat it under criticism until every detail of the procedure is thoroughly understood.

In this course the student is trained in the use of forceps for all the appropriate emergencies. The whole hour is spent by the section in practice on each single maneuver. All the malpositions of the head are taken up in turn for study, comparison and differentiation. The management of breech cases comes next. In due course versions are considered and prolapse of the cord and extremities until the entire list has been covered. The student repeats each operation until he can perform it with reasonable dexterity. In every case the student examines the concealed fetus and makes a diagnosis of presentation and position from the distinctive anatomic features, which he recognizes by touch. Then having visualized the problem and decided on the appropriate treatment he is prepared to teach his hands and brain to cooperate. The obstetric course as outlined occu-

pies about 100 hours and, since the hours are spread over a period of two years, it might be advisable to expand the present limitations

Meanwhile, time for the student who elects it is provided in the maternity clinic, where minor technical maneuvers are practiced so that the principles of modern antepartum care may be regularly inculcated. The student is next introduced to actual case work either in the hospital or by domiciliary practice in the outpatient department, under supervision.

The manikin course must be regarded as the most vital part of the obstetric education for the undergraduate, while its stimulating reaction on the older departmental attendants is one of its most gratifying features.

No school should be entitled to a class A rating which does not offer a complete and well thought out course in manikin conferences like the one described. However eminent a lecturer may be, he cannot convey to students a clear understanding of obstetric problems without more patience and determination than he is apt to give unless he uses the manikin. The processes, which are wholly mechanical, are too complex for easy visualization by an uninitiated mind. The problem in undergraduate instruction is to grind in the fundamentals and let the knowledge broaden and increase as the mind grows with experience.

I studied the catalogues of fifty-seven of our best schools and sent out a questionnaire. Among these fifty-seven schools, only thirteen devoted ten or more hours to manikin instruction. Among twenty-nine others, thirteen did not mention the subject in their catalogues, while in sixteen the manikin was used only for casual illustration by the lecturer. The students had no access to it. From fifteen colleges no information was obtainable. The only deduction from this survey is that manikin teaching is not provided in about 75 per cent of our schools. This omission is not altogether creditable to an obstetric department. Until the condition is corrected, medical men will not be able successfully to confute the imputations that our maternity cases do not get adequate care.

### **The Public Health Aspect of the Teaching of Obstetrics in Undergraduate Medical Schools**

DR ROBERT H. RILEY, Baltimore. This article will be published in full in *THE JOURNAL*.

### **Undergraduate Obstetric Education**

DR FRED L. ADAIR, Chicago. This article will be published in full in *THE JOURNAL*.

### **DISCUSSION ON SCOPE AND OBJECTIVES OF THE UNDERGRADUATE TEACHING OF OBSTETRICS**

DR PAUL TITUS, Pittsburgh. The obstetric education of medical students and young doctors seems to be steadily improving even though it can stand infinitely more improvement. The question frequently propounded is "When should the teaching of obstetrics to medical students be begun?" It cannot begin too early. Anatomy and embryology, physiology and physiologic chemistry, bacteriology and pathology would be intensified in their interest to students if the multitude of ways in which they apply to obstetrics could be pointed out in the preclinical years. I should like to ask how often an obstetrician is requested to discuss the female bony pelvis before a first year class in anatomy or has an opportunity to describe to first or second year students the effects of bacterial contamination during labor and delivery. Abnormalities demonstrated on the manikin properly supplement classroom and textbook instruction in the last two years, but a reasonable amount of clinical work with frequent clinical conferences should dominate the fourth year. Obstetrics and gynecology should not be divorced in teaching. The two are inseparable, and there is a trend toward a combination of these chairs in schools of medicine. The intern year should be universally compulsory before a license is given to practice medicine. The American Board of Obstetrics and Gynecology, of which I have the honor to be secretary, has just completed a survey of graduate training facilities in our specialty in the hospitals of this country. I regret to say that the planned opportunities for clinical training toward outright specialization are much greater than those for the general hospital practitioner. The unfounded charge made by social workers and popular writers that the maternal mor-

tal and morbidity rates are much higher in America than elsewhere in the world is grossly inaccurate for the reason that vital statistics of the various countries of the world have no common denominator by which they can be compared. If we in the United States include in our maternal mortality rates, as some states do, women who die from illegal abortions we are being more honest, statistically, than certain countries which classify as a puerperal death only women dying after a "live-birth," and live-births as including only babies that live long enough to be baptized. The medical ability of our doctors will be useless if women remain so indifferent that they fail to seek antepartum care. Rother's fifteen-state survey showed that 54 per cent of the women dying from childbirth causes in a given period had had little or no antepartum medical care. There are three hopeful facts in what is admittedly a high death rate from maternal causes. The first is that constant propaganda is being carried on to teach women and physicians the value of antepartum care. The second is that puerperal death rates are slowly but steadily declining in this country, according to statistics of the Metropolitan Life Insurance Company. The third evidence of progress is that symposiums such as this are being presented to audiences deeply concerned with improvement in education in obstetrics.

DR W. S. LEATHERS, Nashville, Tenn. The maternal mortality rate of this country has not appreciably declined during the past decade. Each year more than 2,000,000 mothers in the United States reach the parturition period, and approximately 13,000 of them die during childbirth. Furthermore, during the past year about 70,000 infants died during the first month of life, which is 58.2 per cent of the total mortality of this age group. Probably 75 per cent of this mortality could be prevented. The neonatal mortality is greatly influenced by the kind of medical service afforded during delivery. It is estimated that 40 per cent of the maternal mortality is due to puerperal infections and 27 per cent to toxemias. Other causes are accidents of pregnancy and labor, a lack of skill, inadequate antepartum care, a lack of aseptic obstetric practice, interference with normal labor, and unnecessary cesarean sections. Midwifery constitutes a serious problem, particularly in the Southern states and among the foreign element in the larger cities. In a few Southern states about 50 per cent of the cases of confinement are attended by midwives who are ignorant and untrained for such service. These facts emphasize the necessity of devoting more attention to the teaching of obstetrics to undergraduate medical students. Approximately 44 per cent of the people of the United States live in rural areas, where mothers must depend largely on the general practitioner for obstetric service. The scarcity of practitioners of medicine in many rural areas and the distances that have to be traveled to interview the doctor frequently preclude the possibility of obtaining adequate antepartum and postpartum supervision. Even though adequate instruction in obstetrics is provided for undergraduate medical students, the problems of rural practice make it difficult to provide antepartum and postpartum care without the cooperation of public health agencies. Indeed, this is fundamental. One of the most encouraging trends at this time is the establishment of full time county and district health services. In 1930 there were 3,075 counties and of this number there were 2,675 in states which now have one or more full time county, township or district health departments. This development is of the greatest importance in attaining the objectives in obstetric practice. At Vanderbilt the fourth year class is divided into groups which visit in rotation two full time county health departments that are well organized and in which antepartum and postpartum care are provided efficiently. All students spend two afternoons discussing this and other phases of the local health program. If some such procedure should be followed in the instruction of undergraduate medical students it would serve as a means of enlisting the continued support and active cooperation of practitioners in the future in this service. Obviously, adequate consideration should be given to obstetrics in the curriculum for undergraduate students. The basic requirement should be an improvement in the quality of instruction in the outpatient service and in the ward supplemented by attendance at twelve or more home deliveries if possible, under the supervision of a member of the resident



staff Each student should also be given an understanding of the public health aspects of obstetric practice and the relation that should be maintained by the practitioner and the local health service. There is also need for more appreciation on the part of the public and in general the medical profession concerning the requirements in modern obstetric service.

DR E. D. PLASS, Iowa City Antepartum care has been in operation more or less extensively in this country for approximately a quarter of a century. During that time there has at least been no reduction in the maternal mortality. Those who are hypercritical might assume from this that antepartum care cannot save lives. Those of us who are concerned with obstetrics believe that that is a false assumption and look for an explanation in the increase in operative obstetrics. Apparently, the harm of the latter balances the good of the former. It is curious that the public thinks of the recent graduate in medicine as being perfectly competent to handle any obstetric case. The individual who would not allow a recent graduate to remove her gallbladder or appendix is content to subject herself to obstetric operation by a recently graduated physician. If we face those propositions together, it seems that we arrive at two alternatives. One, that we should prepare our medical graduates to handle obstetric emergencies and to do obstetric operations after the fashion of the more experienced, or that we should educate the lay public to the dangers of obstetric operations and to the necessity of especially trained operators. If we cannot provide what has been described here as adequate obstetric training for our students, we certainly cannot provide this more advanced training which would give a proficiency in operative technic. I resent the idea that these problems of maternal mortality go back directly to the teachers of obstetrics. I believe that, before we condemn those teachers too severely, we should think that the woman herself has a considerable burden to bear, and until we educate the public to these dangers we shall not have an improvement in our maternal mortality statistics.

DR GEORGE W. KOSMAK, New York I have little to add except possibly to controvert the idea that I assumed that a greater practical experience of the medical student with patients, such as I have suggested in this increased outdoor service, would fit the young graduate to perform obstetric operations. I think it would have the exactly opposite effect. I think that a student who is made responsible, under supervision, of course, for the adequate delivery in an obstetric case becomes more duly impressed with the fact that labor is a physiologic process and that his main duty is to watch it and to see that it is carried out properly rather than to think of short cuts for delivery. It is these short cuts for delivery that have done so much to increase our maternal mortality rates. I tried to show that, as a basis for a change in our teaching, we would have to take into consideration the increased operative incidence in obstetric deliveries which seem so prevalent in this country. Does that increase in operative deliveries mean that our women are less able by their natural forces to bring to an end this process of labor? I hardly think that is an explanation. I think that our women are just as competent as the women of other countries to do this. They are no worse off than these women with whom they are compared, so that something else must enter into the picture, and I think that something else is this great desire on the part of improperly and insufficiently trained medical men to devise short cuts in obstetric deliveries which are not really called for.

FEBRUARY 17—EVENING

## THE FEDERATION OF STATE MEDICAL BOARDS

### The Responsibility of a University in Medical Training

EUGENE A. GILMORE, LL.B., Iowa City The standardization activities of the American Medical Association, the Federation of State Medical Boards and the Association of American Medical Schools have been of invaluable service in the elimination of unfit and incompetent schools and practitioners. Moreover, the public has traveled along with the standardization program and has supported it, notwithstand-

ing the vigorous dissent of certain minorities and despite misgivings that the program was tending to place needed medical care beyond the reach of the masses. Standardization cannot run too far ahead of prevailing sentiment. Current discussion affords evidence of growing resentment against high medical costs and of the beginnings of various movements to establish socialized, syndicated or collective devices to circumvent difficult access to what the medical profession has taught the people to believe is very desirable. The solution does not lie in abandoning or lowering the standards or withdrawing the emphasis but rather in an educational program designed to create in the people an appreciation of the value of the standards and their importance to the public welfare and, more important, in impressing on the profession itself a keener sense of its social obligations.

Without disparaging but, on the contrary, praising those who have worked in the interest of higher standards for medical education and practice for the public good, one must recognize that the guild motive of monopoly has been in the minds of some of the most ardent advocates of high standards. Evidence of this is especially apparent in connection with the technic used for the selected lists of medical specialists in various fields. There is much talk about an excess of physicians. It is urged that a formula must be found which will tell how many doctors are needed for a certain number of people, and that only that number should be educated and licensed. Rather, more and better doctors are needed, better in every sense better in technical knowledge, skill and training, better in personality and character, better in general education, better in appreciation of the social implications of the healing arts and their relation to other instrumentalities of general welfare. What constitutes an excess? Excess is purely a relative term. It varies with the environment, with the economic condition of the people, with the scope and intensity of their appreciations, and with their educational and cultural development. Who would have predicted twenty-five years ago that the people of the United States would have the capacity to use 30,000,000 automobiles or 15,000,000 radios? The cosmetic industry and the beauty parlor came from an aroused interest in personal appearance. This was one activity that flourished and expanded even in the darkest days of the depression. Formal education is another one. Theoretically there is a point of saturation for everything. Too much reliance, however, should not be placed on artificial formulas to determine the scope of the demand and what constitutes an excess. In our laudable pursuit of standards, we are prone to accept such artificial formulas, to resort to numbers and formal tests as a basis of selection, to assume that the community's capacity to consume has been reached and to assume that mere quantity necessarily results in deterioration of quality. What all professions need is to become more conscious and confident of their own potentialities of growth and development. They need to get a better historical perspective of organized society and a more adequate appreciation of the potentialities of a people growing in intelligence and wealth to use skilled services. For the time being and for the prevailing type of doctor, we may have too many as society is now organized and as scientific development now stands. But science, art and civilization are not static.

The development of this historical perspective is the chief responsibility of the university in medical training. Its realization will come through a broader education, both in the pre-medical and in the medical periods. It must likewise train men adequately for the practice of the art of medicine. Here it may let the vocational objective predominate, but the pursuit of a vocational end can be made in a liberal atmosphere. There is a third function which the university should assume, and that is the orientation of the prospective physician in a large and cultural general education which will enable him to appreciate the possibilities of his own profession and also to appreciate the social implications and responsibilities of his profession. Such orientation can be made by the liberalization of the present premedical and medical courses. Its more perfect attainment will come, however, when the technical medical course rests on the general education represented in the curriculum of a college course in liberal arts. If the university is to be charged with a responsibility for medical training, it might insist that the present medical curriculum proceeds too much on the

assumption that professional education is a mere process of acquiring information. The result of this assumption is a tendency to load programs of professional education with a maximum of informational topics which it is felt a physician should know. This attempt to teach all things to all men represents an unwarranted faith in mere information. It overlooks what should be continually kept in mind in any program of sound education, namely, that truly educated men can be trusted to learn some things for themselves.

### The Art of Medicine

DR IRVIN D. METZGER, Pittsburgh. The former preceptor plan gave the prospective medical student an insight into the workings of the art in medicine. His ambitions to enter the profession then were either frustrated and his efforts diverted into more suitable lines of endeavor, or they were enhanced so as to place before the student an envisaged challenge which pictured a needy patient at every stage of his subsequent scientific development. Now students are shunted from the secondary to the professional schools and on to the verge of graduation before they sense the meaning of medical practice. Attempts are made through required internship, as a fifth year of medical training, to make amends for the dearth of clinical experience. In the internship an opportunity is given to develop a sense of responsibility not offered by the medical school. If the intern is held responsible for the condition of patients in the absence of his chief, he gets a feeling of what it means to have the lives of helpless people hanging trustfully on his judgment and conscience. He thus may grow in the grace and charm and wisdom of a real physician. Unfortunately, many medical minds are so surfeited with hard medical facts that they can scarcely be induced to mellow into that plastic mentality which can evaluate the clinical condition of the patient, which can elicit the subtle factors which underlie functional aberrations and which can sanely apply their medical knowledge to the needs of their patients.

Medical artistry cannot be acquired through abstract rationalization, such as is followed in the acquisition of medical knowledge. It must be attained by experience. An encyclopedic knowledge of medicine not only fails in itself to encompass the needs of adequate practice but may positively hinder the prospective doctor in attaining even a mediocre measure of success. Medical knowledge, when logically acquired, is indispensable to professional perfection but it must be only the stairway on which professional striving mounts into artistic professional realism.

The art of medicine requires the physician to enter into the lives of his patients. Not only must he know what are the variable general trends in human nature but he must be able to individualize the ones most dominant in the life of each. An adequate history of a patient involves not only the physical abnormalities of the past but also salient factors in the mobilized mental status that now exists. The ability to comprehend the social and environmental factors that enthrall the patient may open the gateway which leads to the restitution of a healthful morale. The artist in medicine discerns the purports of life. He who sees in his patient just another case that is suffering from a conventional disease fails as a physician even though he may cure. This businesslike attitude of many recent physicians savors strongly of exploitation. Its recognition by social workers and politicians urges them to call for medical regulation by the state. If practitioners of medicine made it less a business and more a mission of mercy, their plea for a maintenance of the sacred relations between physician and patient would not seem so much of a mockery. We have scarcely touched this most vital factor in the development of a practical physician. Perfection in fact finding and in scientific technique has been our aim so that we have lost sight of the real goal—the production of a creative personality with a stalwart character. The time is not far distant when administrators of the medical laws will be less concerned about the scientific knowledge which candidates possess but much more about the mental, the moral and the social adaptability to the profession which the candidates for licensure possess.

All recognized medical schools furnish ample scientific training to assure reasonable service to the sick. Why should we spend more or less futile efforts in further assuring ourselves

in this matter? Relatively few schools, even in these days of better pedagogic instruction in medical schools, fathom intimately the deeper factors of personality in the individual student. Many medical schools fail to take note even of the physical condition of its students, what may we expect in respect to the more subtle mental trends? It seems to me that any licensure granted to a candidate should be conditional. If a license when granted should be limited to a period of some five years, after which a renewal for permanence would be required by the state board, a means of control would be available. Exploiters could be eliminated before they became socially grounded. Quasiethical nuisances could be curbed before they brought reproach on the entire profession. Amateur specialists could be halted before they demoralized the faith of the community in the integrity of the profession. Bunglers in practice would be offered an opportunity to seek a more suitable vocation. The problems facing us may be variable but in essence are similar. Wholesome policies for one state are helpful in every other. Cooperation with medical organizations renders a mutual service, and must always be encouraged by our boards. Let us demand of our candidates not less factual knowledge in the science of medicine but more effectively trained minds in its application. Then we may hopefully expect the evolution of many masters in clinical medicine.

(To be continued)

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Personal**—Mr. William A. Byrne has resigned as special agent of the state board of medical examiners, after several years' service, effective February 12.—Dr. Wesley W. Beckett, Los Angeles, has retired as medical director of the Pacific Mutual Life Insurance Company, after thirty years' service, he has been succeeded by Dr. Linford H. Lee, assistant medical director. Dr. Beckett becomes medical director emeritus.

**Japanese Night at Medical Club**—The International Medical Club sponsored a Japanese night at its meeting, March 27, in Los Angeles. Guests of honor were Dr. Harlin Shoemaker, president of the Los Angeles County Medical Association, Hon. Tomokaya Hori, consul for the Japanese government, Dr. Daishiro Kuroiwa, president of the Japanese Medical Association, and Mr. Congoro Nakamura, president of the Japanese Chamber of Commerce.

**Society News**—Dr. Arthur L. Bloomfield, San Francisco, discussed "Clinical Aspects of Streptococcus Infection" before the Palo Alto Medical Society, February 24.—Dr. Archibald A. Alexander, Oakland, discussed lead poisoning before the Contra Costa County Medical Society, February 11.—At a recent meeting of the Monterey County Medical Society in Pacific Grove, Dr. Edwin F. Kehr, Carmel, spoke on "Hypoglycemia and Hyperinsulinism."—Speakers before the San Bernardino County Medical Society recently in San Bernardino included Dr. Walter F. Pritchard, San Bernardino, on "Urologic Complications of Pregnancy."—Dr. Platt W. Covington, Salt Lake City, addressed the San Joaquin County Medical Society in Stockton, February 6, on "Research on Influenza" and Dr. Emmett Rixford, San Francisco, "Industrial Accidents."

### DISTRICT OF COLUMBIA

**Rockefeller Grant to Howard University**—Howard University School of Medicine, Washington, has received a grant of \$100,000 from the Rockefeller Foundation, to be used over a period of five years toward the developments of the departments of medicine and surgery.

**University News**—Dr. Charles O. McCormick, Indianapolis, gave a lecture at Georgetown University School of Medicine, February 28, on "Analgesia in Labor." A course in medical social economics has been added to the curriculum of the senior year. Lectures on the various aspects of the subject are given by different authorities. Present lecturers are

Drs Arthur C Christie, Oscar B Hunter, Henry C Macatee, George C Ruhland, J Russell Verbrycke Jr, Wallace M Yater and Mr Ross Garrett

**Medical Bills in Congress**—H R 12035, introduced (by request) by Representative Norton, New Jersey, proposes to provide for the treatment and care of persons addicted to the use of intoxicating liquors. The bill provides for an appropriation of \$200,000 to erect buildings to house and treat addicts and provides that any person who has been convicted on charges of drunkenness or intoxication three or more times within the year immediately prior to the last conviction shall be deemed to be addicted to the use of intoxicating liquor. H R 12036, introduced by Representative Scott, California, proposes to provide for the establishment, in the District of Columbia, of a system of social insurance, by the enactment of a "Workers' Social Insurance Act."

### FLORIDA

**Society News**—Dr James S McLester, Birmingham, Ala., President, American Medical Association, addressed the Hillsborough County Medical Society in Tampa, February 24. A joint meeting of the Dade and Broward County Medical societies was addressed in Miami Beach, March 16, by Drs William V P Garretson on "The Psyche in Relation to Physical Symptoms," John F Erdmann "Tumors of the Uterus," Joseph F McCarthy, "The Prostate and Adnexa Considered from the Standpoint of Obstruction as a Potential Focus of Infection and of Other Constitutional Manifestations," Andrew A Eggston, "Newer Application of Clinical Pathology to Diagnosis," and Joseph D Kelly, "Relation of Otolaryngology to Allergy." All are of New York.

### ILLINOIS

**Society News**—Dr John S Coulter, Chicago, addressed the DuPage County Medical Society, February 19, in Elmhurst on "Physical Therapy in the Treatment of Chronic Arthritis." Speakers before the Hancock County Medical Society, March 2, were Drs Harold Swanberg and Walter M Whitaker, Quincy, on "Modern Treatment of Cancer of the Uterus" and clinical use of electrocardiography respectively. At a meeting of the Perry County Medical Society in Duquoin, March 5, Dr Eugene Lee Shrader, St Louis, discussed "Coronary Disease" and Dr James L Mudd, St Louis, "Surgical Treatment of Lung Suppuration."

### Chicago

**Personal**—Dr Antome Lacassagne, associate director of the Curie Institute of Paris, lectured at Michael Reese Hospital, March 10, on "Modern Conception of Radiation in the Treatment of Cancer." Dr Jacob Frank observed his eightieth birthday, March 16.

**Society News**—At a meeting of the Chicago Gynecological Society, March 20, Dr Harold H Hill, Oak Park, Ill., among others, discussed "The Value of the Sturmdorff Cone for Biopsy Material in the Detection of Early Carcinoma of the Cervix Uteri." The Chicago Society of Internal Medicine was addressed, March 23, among others, by Dr Harry A Singer on "Pyrexia Due to Gastric Carcinoma." Speakers before the Chicago Society of Industrial Medicine and Surgery, March 25, were, among others, Drs James H Hutton on "Endocrinology in Industrial Medicine," Philip H Kreuscher, "Surgery of Arthritis" and Rosco G Leland, "Changes Confronting Modern Medicine."

**Slayers of Dr Peacock Confess**—Four young Chicago robbers have confessed to the murder of Dr Silber C Peacock, a specialist in children's diseases, January 2. Dr Peacock had been lured from his home on a fake telephone call, presumably to attend a sick child. The robbers awaited his arrival at the address given and during the encounter he was beaten shot and robbed of \$20. The members of this gang are youths from 17 to 19 years of age, living on the northwest side. They have been identified also by the following four physicians as the hoodlums who recently robbed them of the amounts indicated after the receipt of a fake telephone call to attend a patient: Dr Joseph F Konopa of \$11, Dr Raymond L Abraham, \$57, Dr Bernard C Kolter, \$19, and Dr Lars A Garness, \$6. Dr John P O'Connell was also held up by the gang on the street March 20. It is reported that about forty other victims of robberies have filed complaints against these youths. Shortly after Dr Peacock's death, the Chicago Medical Society appointed a committee to assist the police in handling this situation and this committee continued to be of service until

the murderers were captured. The society not only offered a reward for the apprehension of the murderers of Dr Peacock but arranged with the police department to have a detective accompany, on request, any member of the society who was called out at night to attend a patient.

### IOWA

**Lecture Series**—The Jefferson County Medical Society and the speakers' bureau of the Iowa State Medical Society began a series of lectures at Fairfield, March 12, with Dr Nathaniel G Alcock, presenting the first lecture, on "Malignancies of the Urinary Tract, with Special Reference to Treatment." Other lecturers in the series are:

Dr Willis M Fowler, March 19, Diagnosis and Treatment of Nephritis  
Dr Horace M Korns, March 26, Medical Treatment of Nontuberculous Diseases of the Lungs  
Dr Howard L Beye, April 2, Surgical Treatment of Diseases of the Lungs and Pleura  
Dr Philip C Jeans, April 9, Specific Treatment of Infectious Diseases  
Dr Frank R Peterson, April 16, Minor Surgery of Today

All the speakers are members of the faculty of the state University of Iowa College of Medicine, Iowa City.

**Society News**—The Clinton County Medical Society was addressed in Clinton, April 2, by Drs Everett D Plass and Ewen M MacEwen, both of Iowa City, on "The Obstetric Pelvis" and "Some Phases of Medical Education" respectively. Dr Henry C Hesselstine, Chicago, addressed the Dubuque County Medical Society, February 11, on "Recent Advances in the Treatment of Vaginal Discharges." At a meeting of the Jasper County Medical Society in Newton, February 4, Dr Kenneth L Johnston, Oskaloosa, discussed goiter. The Johnson County Medical Society was addressed in Iowa City, February 5, by Dr Edward A Schumann, Philadelphia, on "Obstetric Deaths." Dr Richard H Jaffe, Chicago, addressed the Scott County Medical Society in Davenport, February 4, on "Classification of Splenomegalies."

### KANSAS

**New Buildings at Medical School**—A clinic building, a four story children's ward, a research laboratory and a warehouse will be erected this year at the University of Kansas School of Medicine. The children's ward is being financed by \$48,000 of federal funds and an anonymous donation of \$60,000. The warehouse will be financed with \$10,000 appropriated by the state legislature and \$8,000 from federal funds. The Hixon Laboratory for Medical Research, which will replace the temporary structure now in use, will cost \$60,000, of which \$35,000 is an anonymous gift and \$25,000 federal funds. The clinic will be constructed with \$55,000 accumulated for this purpose by Bell Memorial Hospital over a period of years and with \$45,000 from federal funds, according to *Modern Hospital*.

### KENTUCKY

**Personal**—Dr John B Floyd, Richmond, has been appointed to a position on the staff of the state board of health to succeed the late Dr Jethra Hancock.

**Society News**—At a meeting of the Third District Medical Society in Bowling Green, February 19, the following speakers discussed various phases of treatment of gonorrhea: Drs John C Burch and Jefferson C Pennington, Nashville, George M Wells and Lawrence O Toomey, Bowling Green. The Southwestern Kentucky Medical Association held its quarterly meeting in Marion, February 25, with Drs Joseph Gant Gaither, Hopkinsville, and Edward B Willingham, Paducah, as speakers on handling of automobile injuries and pneumoconiosis, respectively. Dr Roy Glenn Spurling, Louisville, addressed the Harlan County Medical Society, Harlan, February 15, on "Meningococcic Meningitis." About 100 cases have recently been reported in the county.

### LOUISIANA

**Personal**—Dr Ford S Williams, Oak Grove, director of the health department of West Carroll Parish, has been appointed to a similar position in St Mary Parish, succeeding Dr Walter W Poinboeuf, Franklin, resigned.

**Society News**—Dr Nathaniel G Alcock, Iowa City, addressed the New Orleans Urological Society, recently, on "Treatment of Bladder Neck Obstruction." The Fourth District Medical Society was addressed, March 3, by Drs Vilray P Blair, St Louis, on "Indications and Technique for Skin Grafting," and Jason P Sanders Caspiana, "Present Day Trends in Treatment of Malaria." Dr Ruffin A Paine, Shreveport, discussed endocrinology before the Shreveport

Medical Society recently — The Bi-Parish Medical Society was addressed recently by Drs Andros S Hamilton and Stanford Chaille Jamison, New Orleans, on "Common Foot Diseases" and "Acute Vascular Failure in Common Medical Diseases"

**Decoration Bestowed on Dr Matas**—Dr Rudolph Matas, honorary chief of the surgical service at Touro Infirmary, was presented with a decoration and the title of commander of the National Cuban Order of Carlos Finlay and a diploma of honorary fellowship in the Academy of Medicine of Havana, March 9, at the annual meeting of the Southeastern Surgical Congress in New Orleans. The presentation was made by Dr Charles Edward J Finlay, Havana, Cuba, son of Dr Carlos Finlay. Last year Dr Matas resigned as chief senior surgeon at Touro Infirmary, a position he had held since 1905. He had been professor of surgery at Tulane University School of Medicine of Louisiana from 1895 to 1927. He was vice president of the American Medical Association in 1921 and again in 1932.

#### MAINE

**Cosmetic Law Upheld by Federal District Court**—A law was enacted in Maine in 1933 prohibiting the sale of cosmetics not registered with the bureau of health. Subsequently the Federal District Court, District of Maine, enjoined the enforcement of the act, presumably on the ground that it contravened provisions in the constitutions of Maine and of the United States. A cosmetic bill was then drafted, which its proponents believed obviated the constitutional defects in the 1933 law. This bill was presented to the 1935 legislature, which passed it and on the governor's approval it became a law (C 109, Public Laws, 1935). The new law prohibits, after Jan 1, 1936, the sale of cosmetic preparations not registered with the department of health and welfare and authorizes the department to refuse to register or to prohibit the sale of cosmetic preparations "which in its judgment contain injurious substances in such amounts as to be poisonous, injurious or detrimental to the person." An attempt was made to have the same federal district court enjoin also the enforcement of the new law, but the court, February 19, refused to do so holding that no evidence had been presented to it to show in what way, if any, the new law offended provisions in the state or federal constitution. The state may now enforce the provisions of the cosmetic law, which, it is believed, if properly enforced, will eliminate from the Maine market cosmetic preparations that may be detrimental to health.

#### MARYLAND

**Personal**—Dr Silas W Weltmer, who has been acting superintendent of the Spring Grove State Hospital, Catonsville, since the resignation of Dr Robert E Garrett in November 1935, has been named superintendent—Dr Ira A Darling, superintendent of the Warren State Hospital, Warren, Pa, has been appointed superintendent of the Springfield State Hospital, Sykesville.

**Industrial Training Course**—A special training course for inspectors of industrial hygiene and safety, the first of its kind to be conducted on an interstate basis, was held in Baltimore for ten days beginning February 10 according to Baltimore *Health News*. The instruction, which was supplemented by a series of inspection visits made possible by the cooperation of local industrial plants, was sponsored by the division of labor standards of the U S Department of Labor, and the lecture and conference sessions were held at the Johns Hopkins School of Hygiene and Public Health. Miss Frances Perkins secretary of labor, attended the closing exercises, February 20 and presented certificates to the twenty-five members of the course who hold official positions in West Virginia, North Carolina, Tennessee, Maryland and in the Baltimore health department.

#### MASSACHUSETTS

**State Farm Quarantined for Meningitis**—The Bridgewater State Farm Bridgewater, was under quarantine March 10 when an outbreak of meningitis was reported. This was the second ban placed on the institution in recent weeks on account of the disease, newspapers reported.

**Society News**—Dr Bernard Appel Lynn, addressed the Essex South District Medical Society in Lynn, March 4 on syphilis—At a meeting of the New England Heart Association in Boston March 23 speakers included Drs Harold M Teel on Cardiac Asthma and Acute Pulmonary Edema as a complication of Nonconvulsive Toxemia of Pregnancy and Arthur T Hertig Angiogenesis in the Early Human Placenta.

**Prize for Essay**—The Massachusetts Medical Society is offering a prize of \$50 for the best written and most comprehensive case report submitted by an intern holding a rotating internship in any Massachusetts hospital approved by the American Medical Association for intern training during 1935-1936. The report is to be typewritten and when completed is to be sealed, unsigned, in a plain envelop, which in turn is to be placed, together with a separate slip bearing the name and address of the contestant, in a larger envelop. It should be mailed to the Massachusetts Medical Society, Committee on Medical Education and Medical Diplomas, 8 The Fenway, Boston, before May 1.

#### MICHIGAN

**State Society Adopts Five Year Program**—At a meeting, January 15, the council of the Michigan State Medical Society approved a five year plan to coordinate and develop the activities of the society. Under the plan, graduate education will be stimulated, the need for proper selection of officers will be emphasized, medical information bureaus will be established in all county societies and information on socialized medicine will be disseminated. Special attention will be given to legislation as it affects the medical profession, and plans for the postpayment rather than prepayment for illness will be developed, according to a statement of the objectives in the *Journal of the Michigan State Medical Society*.

**Foundation Offers Graduate Course**—The W K Kellogg Foundation is offering a two weeks' graduate course in medicine at Washington University School of Medicine, St Louis, beginning April 13, for physicians in Calhoun, Barry, Branch, Eaton, Allegan, Hillsdale and Van Buren counties and Battle Creek, which areas are included in the community health project sponsored by the foundation. The course will be under the direction of Dr Williams McKim Marriott, dean and professor of pediatrics, at the medical school, and it will be adapted to the needs of the general practitioner. Work will begin each morning at 8 30 except on Monday, April 13, when the first meeting of the class will be at 10 a m at the St Louis Children's Hospital, and will continue until 5 p m, with one hour intermission for luncheon. Evening meetings are planned for at least twice a week, starting with dinner followed by round table discussions of subjects in which the physicians are particularly interested. There will be a farewell banquet at the Kings-Way Hotel, Friday evening, April 24. At least 100 physicians are expected to attend the course, the foundation caring for all expenses.

#### MINNESOTA

**Society News**—The Hennepin County Medical Society was addressed, March 25, by Drs Lawrence R Boies and Henry E Michelson on "Tumors of the Nose and Throat" and "Cancer of the Skin" respectively. Dr Fred L Adair, Chicago, will address the society, April 6, on "Placenta Praevia."

**A Country Doctor Honored**—A plaque was presented to Dr Charles L Scofield, Benson, at a testimonial dinner, March 9, given by the Benson Chamber of Commerce, in recognition of his fifty years as a country doctor and forty-six years as "Benson's beloved citizen." Dr Scofield graduated from the University of Iowa College of Medicine in 1886. He was one of the charter members of the Minnesota Association for the Study and Prevention of Tuberculosis, and has served as a member and an officer of the Sanatorium Advisory Commission and the State Sanitary Conference. He was president of the state board of health in 1922. He has served as mayor and a member of the school board of Benson and as a councilor of his district society. Speakers at the dinner included Drs Albert J Chesley, executive secretary of the state board of health, Edward A Meyerding executive secretary of the Minnesota Public Health Association, and William W Will, Bertha, president of the state medical association.

#### MISSOURI

**State Medical Meeting at Columbia**—The Missouri State Medical Association will hold its annual meeting at the Hotel Tiger, Columbia, April 13-15, under the presidency of Dr Edwin Lee Miller, Kansas City, with the Boone County Medical Society acting as host. Monday evening there will be a dinner meeting of the maternal welfare committee, at which Dr Joseph L Baer, associate clinical professor of obstetrics and gynecology, Rush Medical College Chicago, will speak on "Critique of Submitted Maternal Death Reports." Reports of maternal deaths during 1936 will be presented at this meeting. Dr Baer will also address the general meeting Tuesday on

"Operative Obstetrics," and Dr Owen Wangenstein, professor of surgery, University of Minnesota Medical School, Minneapolis, will be the guest speaker Wednesday afternoon on "The Acute Abdomen." Frederick A Middlebush, Columbia, president of the University of Missouri, will speak and the following physicians, among others, will present papers

Sam E Roberts, Kansas City Impaired Hearing Classification and Management

Carlie B Souter Smith Springfield Management of Squint

William M James St Louis Diagnosis and Treatment of Ocular Complications in Syphilis

William Byron Black Kansas City, Rational Treatment of Chronic Sinus Diseases

Jacob Kulowski St Joseph Complications of Pyogenic Osteomyelitis and Their Treatment

John R Green Independence Etiology of Mesenteric Thrombosis

E Lee Dorsett St Louis Prolapse of the Uterus Operative Treatment with Special Reference to the Manchester Operation

Bransford Lewis St Louis, The Loose Kidney Problem and the General Profession

Elmer E Sexton St Louis Problems of the Female Urethra

Jacob G Probst St Louis Serious Complications and Sequelae Resulting from the Injection Therapy of Varicose Veins

John H Ogilvie Kansas City Methods of Examination of Low Back Pain

Sinclair Luton St Louis, The Clinical Use of Digitalis Its Variables

Willard Bartlett Jr St Louis, A Ten Year Mortality Study in Toxic Goiter

Harvey P Doughnau Kansas City Pernicious Anemia

Edward P Heller, Kansas City Management of Injuries to the Spine and Pelvis

Charles E Bell, Ira H Lockwood and Frederick C Narr, Kansas City Tumors of Superior Mediastinum

John H Hershey St Louis A New Method of Nerve Stimulation

Caryl R Ferris Kansas City Modern Trend of the Treatment of Staphylococcus Infection

William M Kinney, Joplin Pathology of Silicosis and Silicotuberculosis

Hyman I Spector St Louis, When Therapeutic Pneumothorax for Tuberculosis Should be Instituted and When It Should be Discontinued

Robert J Crossen, St Louis Endocrine Treatment in Gynecology

Joseph W Larimore, St Louis The Ileocecal Segment

Louis Rasseur St Louis Common Duct Gallstones

## NEW HAMPSHIRE

**Personal**—Dr Ralph E Miller, assistant professor of pathology, Dartmouth Medical School, Hanover, has been promoted to be associate professor and appointed assistant dean of the school. Dr Miller is on leave for the current semester studying in Berlin.

## NEW YORK

**Personal**—Dr George W Corner, professor of anatomy, University of Rochester School of Medicine, has been named Thomas Vicary lecturer for 1936 of the Royal College of Surgeons. The lecture will be given in December on a subject in the history of anatomy or surgery. Dr Corner will also give a series of lectures on physiology of the ovarian hormones under the auspices of the University of London and Guy's Hospital Medical School.—Dr Louis V Waldron has been appointed health officer of Yonkers to succeed the late Dr William S Coons.—Dr George Hoyt Whipple, Rochester, was recently elected a member of the board of scientific directors of the Rockefeller Institute for Medical Research, New York.

**Society News**—Dr Joseph L Baer, Chicago, addressed the Buffalo Academy of Medicine, February 19, on "Prolapse of the Uterus."—Dr Jesse G M Bullowa, New York, addressed the Suffolk County Medical Society at its quarterly meeting in January on pneumonia.—A program on pneumonia was presented at the meeting of the Medical Society of Albany County, February 26, speakers were Drs Otto A Faust, John J Clemmer Jr and Lemuel Whittington Gorham.—Dr Thurman B Givan, Brooklyn, addressed the Medical Society of the County of Nassau, February 25, on the "Diagnosis and Treatment of Congenital Syphilis."—Dr Evarts A Graham St Louis, addressed the Rochester Academy of Medicine, February 6, on "Congenital Cystic Disease of the Lung in Relation to Pulmonary Suppuration."

**Bills Introduced**—S 1771 and A 2130 propose to make it the duty of every attending or consulting physician, nurse, parent or guardian having charge of any minor under six years of age who is totally deaf or whose hearing is impaired "to report the facts to the health officer of the appropriate city, town or village. It is then to be the duty of the health officer to investigate and to have an otologist examine the child and to provide such medical or surgical care and treatment as is needed, if the parents are unable to provide it. S 1790, to amend those provisions of the civil practice act which authorize a court to require when relevant any party to an action and the child of any such party to submit to blood grouping tests and to make the results of these tests admissible in evidence,

proposes that the results of the tests be received in evidence only where definite exclusion is established. S 1791, to amend those provisions of the domestic relations law which authorize the court before whom any paternity proceeding is pending to require the defendant, the child and the mother to submit to blood grouping tests and to make the results of such tests admissible in evidence, proposes to make the results of such tests admissible in evidence only in cases in which definite exclusion is established.

## New York City

**Patients in City Hospitals**—A total of 243,801 inpatients were admitted to hospitals of the city system during 1935 according to the annual report of the commissioner of hospitals. Dr Sigismund S Goldwater. These patients obtained a total of 6,544,472 days of care, an average of 25.1 days per patient. The average daily total of bed patients was 17,930, the report showed. The mortality rate was 6.9 per cent.

**Personal**—Dr George Gray Ward, New York, was a guest speaker at the tenth British Congress of Obstetricians and Gynecologists at Belfast, Ireland, April 1-3. Dr Ward's subject was "Reconstructive Pelvic Surgery for Genital Prolapse."—Drs Anthony Brasser, Max Einhorn and Samuel Weiss have been elected honorary members of the Belgian Gastro-Enterologic Society.—Henry C Sherman, Ph D, professor of chemistry, Columbia University, received the bronze plaque awarded annually by the Alumni Association of the Graduate Schools of Columbia University for "outstanding contributions to the human race." Dr Sherman was honored for his work in nutrition. Louis I Dublin, Ph D, vital statistician, received a scroll of honor at the same time. The awards were presented at a dinner March 17.

**Society News**—At a joint meeting of the New York Heart Association with the section of medicine of the New York Academy of Medicine, March 17, speakers were Drs Lucy D Porter Sutton on "Management of Rheumatic Heart Disease" and Irvine H Page, "Observations on the Mechanism and Treatment of Hypertension."—Drs Harrison S Martland and Raphael Pomeranz, Newark, N J, addressed the New York Roentgen Society, March 16, on "Etiology of Silicosis and Its Medicolegal Considerations" and "Roentgen Findings in Silicosis" respectively.—Drs George Edgar Burford and James Seymour Edlin addressed the American Society of Anesthetists at the New York Academy of Medicine, March 18, on "Continuous Flow Administration of Cyclopropane" and "Common Pulmonary Complications Following Abdominal Operations" respectively.—Drs Richard Kovacs and William Bierman addressed the Bronx County Medical Society, March 18, on "Physiotherapy in Relation to Traumatic Surgery" and "Fever Therapy by Physical Means" respectively.—A symposium on complications of gallbladder surgery was presented at a meeting of the New York Surgical Society, March 11, by Drs Charles Gordon Heyd, Ralph Colp, Leon Ginzburg and Ellsworth Eliot Jr.

## NORTH CAROLINA

**Surgical Meeting**—The North Carolina Academy of Surgery held a one-day conference in Charlotte, March 7. Clinics were held at various hospitals in the morning and a program of addresses was presented in the afternoon at the Hotel Charlotte. Speakers were Drs Fred W Rankin, Lexington, Ky, Dean D Lewis, Baltimore, Joseph E J King, New York, Alfred A Strauss, Chicago, and Edgar I Fincher Jr, Atlanta.

## OHIO

**Personal**—Dr Sidney M McCurdy, Youngstown has been appointed director of the medical division of the Ohio State Industrial Commission, succeeding Dr Hugh H Dorr, Columbus. Dr Roy J Secrest, Columbus, a member of the division's staff for eight years, has been made assistant director.

**Hospital News**—Dr Howard P Doub, Detroit, was the guest speaker at the third clinical institute of the year at the DeEtte Harrison Detweiler Memorial Hospital, Wauseon, February 13. Dr Doub conducted a clinic and spoke on "Diseases and Injuries of the Back and Kidneys." Dr Earl H Baxter, Columbus, conducted the institute, March 26, on "Modern Trends and Advances in Pediatrics."

**Society News**—Dr John M T Finney, Baltimore, addressed the Summit County Medical Society, Akron, March 3 on "Pitfalls to Be Avoided in Surgical Diagnosis."—Dr Walter M Simpson, Dayton, addressed the Cleveland Academy of Medicine, March 20 giving "A Clinical Appraisal of Artificial Fever Therapy."—Dr Charles W Mayo Rochester Minn, addressed the Van Wert County Medical Society, Van Wert,



March 3, on "Comparative Physiology of the Intestinal Tract"—Dr William J Egan, Milwaukee, addressed the Cincinnati Academy of Medicine, March 3, on "Clinical Experience with Ultra Short Wave Therapy"—Dr George M Curtis, Columbus, addressed the Columbus Academy of Medicine, February 10, on "Splenectomy in Treatment of Blood Diseases"

### OKLAHOMA

**State Medical Meeting at Enid**—The forty-fourth annual meeting of the Oklahoma State Medical Association will be held in Enid, April 6-8, under the presidency of Dr George R Osborn, Tulsa. The general scientific meetings of the state association will be Tuesday and Wednesday mornings, with section meetings in the afternoons. Guest speakers will include

Dr William E Sauer St Louis Cancer of the Larynx Things Every OALR Man Should Know Diseases of the Paranasal Sinuses  
Dr Alfred I Folsom Dallas Texas Pylitis in Children Pylitis in Infants Practical Considerations in Treatment of Complications in Gonorrhea  
Dr Arthur E Hertler Halstead Kan Goiter Hernia  
Dr Albert N B Lemoine Kansas City Mo Fever Therapy in Ocular Manifestations of Syphilis  
Dr Ira H Lockwood Kansas City Mo The Use of X Rays in the Diagnosis of Breast Tumors  
Mr G A Criswell Oklahoma City Compensation Insurance  
Dr Robert U Patterson dean University of Oklahoma School of Medicine Some Important Contributions to Medical Science by Military Surgeons

The annual golf tournament will be held Monday afternoon, April 6, at the Meridian Country Club and the Oklahoma Pediatric Society and the Woman's Auxiliary will hold their meetings that day

### PENNSYLVANIA

**Committee on Social Problems**—At a meeting of the board of trustees of the Medical Society of the State of Pennsylvania, February 4, the chairman, Dr Edgar S Buyers, Norristown, appointed a committee of five members of the board to be known as the committee on social aspects of sickness service. This committee is to confer between regular meetings of the board with representatives of the standing committees of the state society or others engaged in the study of the social aspects of sickness service as they may involve plans proposed by county societies for benefit of the indigent, those on emergency relief, those seeking to pay on a budget system and those seeking to provide in advance for the so-called catastrophic illnesses. Dr Augustus S Kech, Altoona, is chairman of the new committee and members are Drs David W Thomas, Lock Haven, George C Yeager, Philadelphia, Robert L Anderson, Pittsburgh, and Laurrie D Sargent, Washington. Members ex officio are Drs Alexander H Colwell, Pittsburgh, president of the state society, Maxwell J Lick, Erie, president-elect, Walter F Donaldson, Pittsburgh, secretary, and Dr Buyers, chairman of the board of trustees. Consultant members are Drs William H Mayer, Pittsburgh, Francis F Borzell, Philadelphia, George L Laverty, Harrisburg, and Chauncey L Palmer, Pittsburgh

#### Philadelphia

**Dr Landis Receives Phillips Medal**—Dr Eugene Markley Landis, assistant professor of medicine, University of Pennsylvania School of Medicine, received the Phillips Memorial Medal of the American College of Physicians at the annual session of the college in Detroit, March 4, in recognition of work in the field of capillary physiology and disturbances of the peripheral circulation. Dr Landis, who is 35 years old, was graduated from the University of Pennsylvania School of Medicine in 1926. In 1929 he received a Guggenheim fellowship to study reactions affecting minute blood vessels with Sir Thomas Lewis in London.

**Auxiliary Sponsors Health Institute**—The Woman's Auxiliary of the Philadelphia County Medical Society will conduct its sixth annual health institute at the society's building, April 14. Among speakers will be

Dr Edward J G Beardsley What Life Teaches the Doctor  
Dr Harriet I Hartley Child Health  
Dr Martin E Rehfuess Diet After Forty  
Dr Joseph C Doane Hearts and the Family Budget  
Dr Louis H Clerf How to Hold Aids to Health  
Dr George E Pfahler Cancer—Increasing Hope for the Patient  
Dr Samuel B Scholz Jr Periodic Health Examination

Mrs W Burrill Odenatt, president of the auxiliary to the Medical Society of the State of Pennsylvania will speak on "The Auxiliary and Its Purpose" and Drs Clifford B Lull, adviser to the auxiliary, and George C Yeager, president of the county society, will bring greetings.

**Society News**—Dr David L Edsall, formerly dean of Harvard Medical School Boston, addressed the section on public health, preventive and industrial medicine, College of Physicians

of Philadelphia, on "The Teaching of the Practice of Preventive Medicine." The occasion was the annual "Student's Night"—Speakers before the Philadelphia Academy of Surgery, March 2, were Drs Bruce L Fleming, on "Inguinal Hernioplasty by Fascial Transplant", Frederick A Bothe and Joseph T Beardwood Jr, "Evaluation of Abdominal Symptoms in the Diabetic," and Virgil H Moon, "An Experimental Analysis of the Symptomatology and Mechanism of Death Following Intestinal Obstruction"—A symposium on "Intracranial Complications of Otorhinc Origin" was presented before the Philadelphia Laryngological Society, March 3, by Drs Oscar V Batson, Benjamin H Shuster and Francis C Grant

### RHODE ISLAND

**Bills Introduced**—S 233, to amend the law regulating the practice of hairdressing and cosmetic therapy, proposes, among other things, to permit such licensees "to remove superfluous hair from the body of any person." H 952, to amend the medical practice act, proposes to provide for the licensing of persons desiring to practice electrolysis by the chief of the division of examiners in the department of public health. Electrolysis the bill proposes to define as "the removal of superfluous hair and the decomposition of such hair by the use of an electric needle or needles." The bill sets out no educational qualifications whatsoever to be exacted of such applicants other than to require applicants to "present satisfactory credentials and submit to an examination" by a competent person appointed by the director of public health. S 289, to amend the laws relating to the practice of osteopathy, proposes that a certificate to practice osteopathy shall confer on the holder thereof "the same rights and privileges and the same duties and obligations as a certificate to practice medicine, except the practice of major surgery, provided, however, that any holder of a certificate to practice osteopathy, who can satisfy the board of examiners that he has completed one year postgraduate internship in a hospital approved by said board, may be granted a license to practice any branch of surgery." The bill further proposes that "all persons receiving the degree of Doctor of Osteopathy and Doctor of Medicine shall be accorded the same rights and privileges under government regulations." H 953 proposes to require any person harboring, or any hospital, maternity home or other institution treating, a woman on whom an illegal abortion has been attempted to report the facts within forty-eight hours after knowledge of the case to the director of the department of public health.

### TEXAS

**Society News**—Drs Marvin D Bell and Elliott M Mendenhall, Dallas, addressed the Grayson County Medical Society, Sherman, recently, on "Melanomas" and "Artificial Pneumothorax Treatment in Pulmonary Tuberculosis" respectively.—Drs John R Nicholson and Otto J Potthast, San Antonio, among others, addressed a joint meeting of the Hays-Blanco, Guadalupe, Caldwell and Gonzales county medical societies in Luling, recently, on "Cystitis as a Symptom" and "Use of Coley's Serum" respectively.—Dr James C White, Boston, presented a paper on "Surgical Measures in the Treatment of Angina Pectoris" before the Harris County Medical Society, Houston, recently.—Dr Prather T Kilman, Malakoff, discussed rabies at a meeting of the Henderson County Medical Society, Athens, February 3.—Speakers at the meeting of the Dallas County Medical Society, April 9, will be Drs Robert L Moore, on "Prevention and Treatment of Measles," Penn Riddle, "Injection Treatment of Hernia," and Julius McIver, "The Cystogram as a Diagnostic Aid in Placenta Praevia"—Dr Ximie R Hyde, Fort Worth, was elected president of the Texas Radiological Society at a recent meeting in Galveston.

### VIRGINIA

**Health at Richmond**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended March 21, indicate that the highest mortality rate (238) appeared for Richmond and that the rate for the group of cities as a whole was 138. The mortality rate for the corresponding week of 1935 for Richmond and for the group of cities was 159. The annual rate for the eighty-six cities for the twelve weeks of 1936 was 137, compared with 128 for the corresponding period of 1935. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that a city is a hospital center for a large area outside the city limits or that it has a large Negro population may tend to increase the death rate.

## WASHINGTON

**New State Secretary**—Dr Vernon W Spickard, Seattle, has been elected secretary-treasurer of the Washington State Medical Association to succeed the late Dr Curtis H Thomson, Seattle. Dr Harrison Garner Wright, Seattle, was made assistant secretary-treasurer. The new address of the state association will be 518 Cobb Building, Seattle.

## WISCONSIN

**Federal Funds to Aid Health Program**—Wisconsin's share of federal funds for health work available under the social security act, about \$139,000, will be used to set up a health organization to demonstrate the value of public health administration on a county basis, according to newspaper reports. The state will be divided into nine districts, each manned by a physician, sanitary engineer, public health nurse and clerk and, in addition, three county units will be established for demonstration purposes. The state programs for control of tuberculosis, gonorrhea and venereal diseases will be augmented. The program was outlined at a meeting in Madison, February 27, attended by an advisory committee representing the State Medical Society of Wisconsin. Members of the committee are Drs Albert H Lahmann and Abraham B Schwartz, Milwaukee; Guy W Carlson, Appleton; Marshall O Boudry, Fond du Lac, and Joseph F Smith, Wausau, Mr J George Crownhart, Madison secretary of the state society, and G B Larson, assistant secretary.

## ALASKA

**Dawson Quarantined for Scarlet Fever**—Dawson was placed under quarantine, March 18, with public gatherings banned, after several persons were stricken with scarlet fever on returning from a carnival at Fairbanks. Schools, churches and theaters were closed, the *New York Times* reported.

## GENERAL

**Death Rate Maintains Same Level**—The provisional death rate for eighty-six cities reporting to the U S Department of Commerce in 1935 was 11.4 per thousand of population, according to figures recently released. Although the total number of deaths was 424,969 in 1935 as compared with 426,990 in 1934, the rate is identical with that of 1934. Cities with the lowest death rates were Yonkers, N Y, Detroit and Flint, Mich., Somerville, Mass., and Akron, Ohio, while the highest rates were in Nashville, Tenn., Washington, D C, New Orleans, La., and Memphis, Tenn.

**Meeting of Anatomists**—The American Association of Anatomists will hold its fifty-second session at Duke University School of Medicine, Durham, N C, April 9-11, under the presidency of Dr Warren H Lewis, Baltimore. More than 150 papers will be read. Included on the program are symposiums on "The Structure of the Hypophysis," "Lymphocytes, Macrophages and Fibroblasts," "Ovulation," "Premedical Education for Anatomy," "Hormones and Development," "Pulmonary Alveolar Epithelium," "Functions and Structure of the Frontal Lobe" and "Effects of the Ovum on Maternal Tissue."

**A Swindler with Tuberculosis**—A man giving the name Robert Crossland has recently been reported as giving to several physicians in Indiana checks which were later returned marked "No account." An Elkhart physician reported to the police that the man came to his office for an examination, giving a history of tuberculosis. At the conclusion of the examination Crossland gave the physician a check for \$12 on the South East National Bank of Chicago. The man claimed that he had been a patient at the Veterans' Administration Facility at Hines, Ill. and was to be transferred to the facility at Oteen, N C. According to the report the man was about 40 years old, 5 feet 7 inches tall and weighed 128 pounds. He gave a history consistent with pulmonary tuberculosis since 1921. Physical examination showed involvement of the left side of the chest, with coarse rales and dullness to percussion. A roentgenogram showed an area of abnormal density about 5 by 8 cm in the lower part of the left side of the chest. The left costophrenic angle was obliterated and the left diaphragmatic excursion markedly limited.

**News of Epidemics**—An epidemic of measles in Dallas, Texas, had affected more than 200 school children with two deaths within two weeks, Dallas newspapers reported March 8. Twenty-one cases of German measles at Lehigh University, Bethlehem, Pa., led to a ban on public gatherings between February 27 and March 11. Classes were not suspended. Fifty-eight families in Westover, Pa., a town of about 800,

were quarantined because of measles, it was reported March 5. The New York City health department reported 1,489 cases of measles during the week ended February 29, an increase of 809 over the number for the corresponding week of 1935. More than forty children were reported to be ill of chickenpox at Oaks, Pa., a small community in Montgomery County. About 140 students at the University of Missouri, Columbia, were reported ill of influenza February 25, there was one death. Influenza was reported to be widely prevalent in upstate New York, March 13, seven schools were closed and it was estimated that about 2,000 children were ill. In Glens Falls, 800 residents were reported to have the disease.

**Medical Bills in Congress**—*Changes in Status* H J Res 538 has been reported to the House, providing for the participation by the United States in the ninth International Congress of Military Medicine and Pharmacy in Rumania, 1937, and proposes to request the President of the United States to invite the congress to hold its tenth meeting in the United States in 1939. H R 3629 has passed the House and Senate, authorizing the acquisition of additional land for the use of the Walter Reed General Hospital. *Bills Introduced* S 4342, introduced by Senator Copeland, New York, proposes to create a Division of Stream Pollution in the Bureau of the Public Health Service. H R 12003, introduced by Representative Hildebrandt, South Dakota, proposes to authorize an appropriation of \$350,000 to erect a veterans' hospital in South Dakota for the diagnosis, care and treatment of general medical and surgical disabilities. H R 11985 and H R 12005, introduced by Representative Ramsay, West Virginia, propose to prevent the manufacture, sale or transportation of adulterated or misbranded or poisonous liquors. H R 12028, introduced by Representative Kennedy, Maryland, proposes to provide hospitalization for certain employees in the Bureau of Navigation and Steamboat Inspection of the Department of Commerce and for licensed local pilots of the United States. H R 12034, introduced by Representative Lemke, North Dakota, proposes to authorize an appropriation of \$180,000 to construct an addition to the veterans' facility at Fargo, North Dakota, for the care and treatment of general medical and surgical disabilities. H R 12059, introduced by Representative Huddleston, Alabama, proposes to provide a system of federal old-age pensions.

## Government Services.

## Openings for Physicians in Conservation Corps

Announcement is made of vacancies on the medical staff of the Missouri-Kansas district of the Civilian Conservation Corps, with headquarters at Fort Leavenworth, Kan. Recent graduates of class A medical schools are preferred, but physicians with extended civilian practice experience are acceptable. All correspondence should be addressed to the district surgeon, Missouri-Kansas District CCC, Fort Leavenworth, Kan.

## Positions Open for Psychiatrists

The U S Civil Service announces open competitive examinations for three positions at St Elizabeth's Hospital, Washington, D C: clinical director (female), at a salary of \$5,600 a year, director of laboratories, \$5,600, and associate psychotherapist (female) \$3,200. The degree of doctor of medicine from a recognized medical school is required for all positions. Applicants for the position of clinical director must show a minimum of five years' experience in psychiatry, which must include at least two years' experience as administrator of a hospital unit of not less than 150 beds treating patients with all types of psychiatric conditions. Applicants for the directorship of laboratories must have had five years' training and experience in research activities in psychiatry and allied subjects. For the third position, three years' specialized work in a psychiatric hospital or clinic operating directly in the field of research and treatment by psychotherapeutic methods is required. Applicants must be in sound physical health and must not have reached their fifty-third birthday. Applications must be filed with the U S Civil Service Commission, Washington, D C, not later than April 20. The necessary forms may be obtained at any first class postoffice, from the Washington office or from the district offices in Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St Louis, St Paul, San Francisco, Honolulu, T H, Balboa Heights, C Z and San Juan, P R.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

Feb 29, 1936

#### The Problem of the Diet of the Poor

In an address to the Farmers' Club, Sir John Orr, director of the Imperial Bureau of Animal Nutrition and a leading authority on this subject, attempted to reconcile the interests of the poor, who want cheap food, with those of the farmers, who want good prices. With the object of raising prices, he said, tariffs and quotas had been applied to imports, and agriculture had been given powers to limit the amounts of home-produced foods and to fix minimum prices. These powers carried grave responsibilities. If they were fully developed, 7 per cent of the population would control the food supply of the remaining 93. Those exercising these powers must therefore think not only of the wholesale price that would make farming remunerative but also of the retail price within the reach of all consumers. A recent investigation showed that the diets of the poorer classes were deficient in substances required for health. To bring the diet of the poorer half of the population up to the standard required, the consumption of eggs, fruit, vegetables and meat should be increased from 12 to 25 per cent. To bring their diet up to that of the well-to-do would require double that increase.

#### SUBSIDIZED CONSUMPTION

Sir John Orr paid a tribute to what had been done in organizing agriculture, especially in connection with marketing, and to the government, which took office when the world economic crisis was at its worst. The one thing needed was better prices to give the farmer more money. Where was the money to come from? If what he said with regard to the health aspect was true, it could not come from rise in the price of food unless there was a big rise in unemployment benefit and in the wages of the poorest paid workers. If there could be a subsidized national food policy in the interests both of agriculture and of health, agriculture could be developed along the lines of increasing the production of foodstuffs of special health value. The policy of buying health and making a prosperous countryside by spending more money on food would reconcile the apparently conflicting interests of the farmer and the poor who must have cheap food.

In moving a vote of thanks to Sir John Orr, Lord Bledisloe, a well known agriculturist, said that he had painted a picture of underfeeding in a land of glutted food markets which was no credit to our national organization. Let the government ascertain national food requirements and the sources from which they could be best obtained on an economic basis and then by some form of protection or guaranty assure to the efficient producer a reasonable margin of profit.

#### Snake Venom as a Hemostatic

The coagulant action of certain snake venoms on blood is well known. This led to the suggestion by Dr Hamilton Hartridge, F.R.S., professor of physiology at St Bartholomew's Hospital, that snake venom might be of value in the treatment of hemophilic hemorrhage. R. G. Macfarlane, demonstrator of pathology in the hospital, and Burgess Barnett, curator of reptiles in the Zoological Gardens, accordingly made an investigation (*Lancet* 2 985 [Nov 3] 1934) into the action of various venoms on hemophilic blood. Their most striking results were obtained with *Vipera russelli*. One drop of a 1:1000 solution of the dried venom added to 10 drops of hemophilic blood produced clotting in seventeen seconds, while spontaneous clotting took thirty-five minutes. Moreover, the clot was tough and elastic,

in contrast to the soft ineffective clot of hemophilia. A dilution of 1:10,000 or even 1:100,000 was found to have a clotting time sufficient for practical purposes—about sixty seconds. The action of the powerful toxins in the venom is negligible in the 1:1,000 solution. Complete hemostasis by the local application of the 1:10,000 solution was secured almost immediately to stop hemorrhage after tonsillectomy and hemorrhage in hemophilic patients following dental extraction.

At the recent meeting of the Odontological Section of the Royal Society of Medicine J. D. Cambrook, assistant dental surgeon at St Bartholomew's Hospital, reported his results from this treatment. He pointed out that it was necessary to sterilize the venom. As heat destroys the coagulant, sterilization was accomplished by filtration. At first the venom was put up in solution, but this was found to be unstable unless kept in a refrigerator. The difficulty was overcome by evaporating the venom with saline solution under reduced pressure, so that addition of water gave a 1:10,000 dilution in physiologic solution of sodium chloride. Thus a stable sterile product was secured and it is this which is now used. The action of the venom in so markedly diminishing the coagulation time, not only of hemophilic but of any blood, is not well understood.

Mr Cambrook has used the venom in more than fifty cases of dental hemorrhage arising from different causes, including several cases in hemophilic patients. If there is a history of hemorrhage he removes teeth under local anesthesia, as this allows early manipulation of the wound without pain. Block anesthesia is preferable, as injection near the socket causes some local damage. After the extraction a short, squat plug of absorbent cotton is soaked in hot venom. Pressure is applied only to the edges of the socket and not down into the socket, so that the plug becomes mushroom shaped and acts as a mechanical obstacle to the flow of blood. The pressure on the plug squeezes out the venom and mixes it with the blood in the socket, so as to form a firm clot. The plug is left in position until it falls out, and if hemorrhage occurs another plug is substituted.

#### The Dangers of Aminopyrine

Another inquest has again called attention to the dangers of aminopyrine, mentioned in a previous letter. The deceased was a man, aged 67, who suffered from asthma and bronchitis, for which he had obtained relief by taking tablets containing aminopyrine. He died after taking eight tablets of the preparation, in which he had great confidence. There was nothing on the bottle warning against taking too many. The instructions were that one or two should be taken when required. In giving evidence the government pathologist, Sir Bernard Spilsbury, said: "Pyramidon is a drug which has a proper use, but the danger lies in cases of idiosyncrasy. People take these tablets for a long time with impunity and then the symptoms develop. The benefits obtained from the drug give a false sense of confidence." A representative of the makers of the tablets said that steps had been taken to exclude the drug from the preparation, which now "would be equally efficacious and less harmful." The coroner said that after May 1 the drug would be on the dangerous list, rendering its promiscuous sale more or less impossible. It was taking the drug without physician's orders that constituted the danger. Some people seemed unable to take aminopyrine with safety.

#### Milking Machines and Mastitis

At a meeting of the Research Committee of the Royal Agricultural Society, Dr F. C. Minett made a report on milking machines and their relation to mastitis in cows. A herd of 130 Avshire cows has been under constant supervision of the Institute of Animal Pathology for five years. During this time only a small proportion was affected with the ordinary chronic

and contagious form of streptococcic mastitis, but there were numerous cases of acute mastitis due to a streptococcus different from that causing the chronic form. It was suspected that the fault lay with the milking machine, and after consultation with the maker the milking vacuum was reduced from 15 to 13 inches. This slightly increased the milking time, but since the change, three months ago, no further cases of mastitis have occurred. During the previous nine months there were at least twenty-one cases. In the past the installation of a milking machine for herds previously milked by hand has often been followed by an outbreak of mastitis and the machine has been blamed for causing or spreading this. The truth appears to be that the ordinary chronic mastitis is widespread in a subclinical form, which remains so as long as the cows are milked by hand, but with the change in the method of milking the mastitis becomes apparent. If the udders are really healthy, the system of milking will have no effect.

### Veterinary Help for Animals in Abyssinia

The Royal Society for the Prevention of Cruelty to Animals has made an appeal for help for the animals, which must endure terrible sufferings in the war in Abyssinia, as there is no veterinary service. During the great war the society collected nearly \$1,250,000 and spent it on British sick and wounded horses. In an appeal for funds, published in the *Times*, the society suggests that the need now is greater in one way, as the Abyssinians have made no provision for the care of their animals.

### PARIS

(From Our Special Correspondent)

March 10, 1936

### Hyperparathyroidism

Leriche has published in the *Gazette des hopitaux* his paper on surgery of the parathyroids, read at the international congress in Egypt. He reviews the indications for excision of the parathyroids, which he performed with Jung in thirty-five cases. In Recklinghausen's disease, which is an ankylosing polyarthritis, Leriche is somewhat hesitant, although in favor of intervention. Scleroderma, in his opinion, is the cutaneous expression of hyperparathyroidism. In scleroderma the skin, like many other organs, has an abnormal calcium content, and the bones are rarefied. The therapeutic results of excision are often good, and some cases have remained cured for ten years. Leriche advises, in the worst forms, intervention on the sympathetic system together with ablation of the parathyroids. There are in scleroderma, vasoconstrictive lesions which sympathectomy influence. Moreover, ablation of endocrine glands always has some effect on the paravertebral and prevertebral ganglions. In 1932 Leriche pointed out that surgery of the parathyroids must be looked on as surgery of interrelated tissues. This view is now confirmed. The maintenance of the calcium level in the blood is constantly insured by borrowing calcium from the bones, the process being controlled by the parathyroids. So the parathyroid hormone regulates calcium metabolism. Experimental hyperparathyroidism leads to bone decalcification, to calcemia and phosphatemia, and to metastatic calcifications of the skin and arteries, but only diffuse decalcification of the bones, with or without metastatic calcification, allows a diagnosis of hyperparathyroidism. Many of the diseases must be now studied from the parathyroid angle, especially those in which metastatic calcifications exist, such as calcinosis and gout. On the other hand, in case of hypoparathyroidism Leriche proposes to reactivate the deficient parenchyma by producing vasodilatation. In three cases of tetany, which is the clinical expression of hypoparathyroidism, Leriche tried ablation of the superior cervical ganglion of the sympathetic. The results were promising.

### The New Leprosy Center in South America

There are in South America two large leprosy areas in the North, Guiana, Venezuela, Colombia and Ecuador, in the South, Brazil, Argentina and Paraguay. In Brazil, it is estimated there are at least 50,000 lepers. The Brazilian government has just founded, with the assistance of the League of Nations, a well equipped leprosy center in Rio de Janeiro. Its director will be Professor Edward Rebello of the Rio de Janeiro Faculty of Medicine. Contracts were made with various health organizations, including the Institut Oswaldo Cruz, the government health services and leprosy hospitals, to insure the cooperation of every important leprosy service with the new center. The most notable organization against leprosy heretofore has been the São Paulo Service, which required the isolation of lepers in five hospitals or colonies. The new center will cost about 10 million francs, donated by the Brazilian government, the League of Nations and a French-Brazilian citizen, M. Guinle. The center will cooperate with any South American nation concerned with the leprosy problem.

### Dermatology and Pathology

In the congress at Budapest, last year, Dr. Darier read a paper on the history of dermatology during the last fifty years, pointing out that dermatology was an unusual field for those interested in general pathology. Darier deplored the confusion of terms that prevails in dermatology. There is urgent need of principles, exact terminology and standardization in this branch of medical science. Darier discussed the need of making an exhaustive diagnosis. His considerations went beyond the bounds of dermatology, into general pathology. But his views are in opposition to those of Loeper, as expressed in a recent inaugural address. Loeper aims to explain everything by chemical specificity, Darier by individual reactions. Their views embody the two great tendencies of medicine either toward the disease or toward the patient. As usual, the truth is probably in between these extremes, but it is interesting to witness controversies between exponents of conflicting theories.

### BERLIN

(From Our Regular Correspondent)

Feb. 8, 1936

### Federal Commission for the Protection of German Blood

The so-called Nuremberg laws make the conclusion of marriage between citizens having two Jewish grandparents and Germans or non-German Aryans, or citizens having but one Jewish grandparent, subject to the approval of the minister of the interior and of the deputy to the fuhrer. A federal commission for approval of marriages has been organized for examination of petitions.

The information utilized by this commission in arriving at its decisions is prepared, after specific investigations, by the high administrative bodies throughout the reich (provincial governors, district prefects, high officials of the independent German states) with which the petitions for approval are lodged. These administrative officials gather what information they can with regard to the petitioner's physical, mental and moral qualities, his participation in the World War, his political reliability and his racial character. In addition, an investigation of the petitioner's family history is undertaken in order to ascertain for how long the family has been domiciled in Germany, what professions or trades its members have followed, whether or not required terms of service in the German armed forces have been fulfilled, and whether or not the family, especially if of German blood, has participated in German cultural life. The administrative body also subjects the petitioner to a physical examination by the health authorities. This examination is especially concerned with racial characteristics. The

administrative body must then obtain, appended to the transcript of the results of this examination, the recommendation of the director of the local public health bureau of the National Socialist German Workers Party. This local director transmits his opinion to the district supervisor of the same bureau, who returns it to the administrative body after appending his own recommendation.

The federal commission consists of seven regular members, four of whom at the present time are physicians, and, in addition, seven alternate members, one of whom is a physician. The commission, on its initiative, can make investigations, summon experts and, which is more important, order the petitioner to appear in person before it. The conclusions of the commission are in the form of recommendations. The power of approval or rejection rests with the minister of the interior and the deputy of the fuhrer. A fee of 10 marks is charged for the granting or denial of a petition, moreover, the costs in each individual case are assessed against the petitioner.

### First Aid for Sudden Illness

A poster emanating from the Insurance Physicians' Association, the Hospital Association and the Central Municipal Bureau of Health was recently affixed to buildings in Berlin. This notice directed the population, in the event of sudden illness, if the stricken person's regular physician could not be summoned, to call on a "first aid physician (*bereitschaftsarzt*)" of the League of German Physicians (an exclusively Aryan organization). The municipal first aid stations (*rettungsstellen*) must henceforth be resorted to only in emergency cases in which it is a matter of life and death. In all other cases these stations shall either refuse to treat the sick person or charge him for such treatment, as sick insurance will not cover the cost of such service. Each person now receives prompt medical attention, in the event of sudden illness, from a first aid physician. Much unnecessary effort and expense are saved in this manner. This regulation is important because it means that, since the insurance physicians' organization seldom grants fees to authorized member physicians, only in exceptional cases can an unauthorized physician now receive a fee from the organization. This regulation must be applied also in the first aid stations. Among other noteworthy advantages of the new rule, it removes a burden of steadily mounting expense from these stations.

Every practicing physician belonging to the National Socialist Physicians' League or the Berlin League of German Physicians is obliged to participate in the first aid service unless incapacitated by age or illness. Hours of night duty are from 7 p. m. to 7:30 a. m., of Sunday duty from 8 a. m. to midnight. While in service duty a physician can only exceptionally make a professional visit in the neighborhood, even to one of his own patients. A pamphlet, appearing quarterly, will contain a schedule of all first aid physicians and the dates assigned them for service.

### Violations of Venereal Disease Legislation

The operation of the antivenereal disease law of Feb. 18, 1927, in terms of adjudicated cases of violation may be studied in data for the first five year period from 1928 to 1932. The provision most frequently violated was that which prohibits a person with a contagious venereal disease from indulging in coitus. Since 1928 the number of convicted violators of this clause has decreased from 292 in 1928 to 206 in 1932. The number of females convicted was nearly three times that of the males. Punishment for this particular offense consisted generally of prison terms of less than three months. Fines were less frequently imposed. The proportion of offenders under the age of 18 amounted to about 5 per cent and was therefore almost as low as the corresponding proportion shown by figures for the entire reich on the age-group distribution of venereal

disease. Among juvenile offenders the female sex preponderates by a wide margin, of a total of sixty young persons convicted from 1928 to 1932 only three were males. A majority of the juvenile offenders received suspended sentences. Comparatively seldom did a court hear charges against venereal disease sufferers who had married without informing the marriage partner of their condition. In the five year period under discussion only nine such cases were disposed of, convictions resulting in seven of these cases (four men, three women). From these meager figures no opinion can be formed as to the incidence of venereal disease in persons contracting marriage. During the same five years, 576 persons not licensed to practice medicine were charged with the illegal treatment of venereal diseases, of this number, 491 (including seventy-nine females) were convicted. Only thirty-three received prison sentences, fines were imposed on the others. In the same period fourteen physicians were convicted of the unethical public advertising of the treatment of venereal diseases. In all of these cases, fines were imposed. Sixty-five persons were found guilty of having advertised alleged cures or palliatives for venereal diseases.

According to data from the state bureau of health, made public, as was the preceding, by Dr. Pohlen, twenty-six midwives contracted infections from newly delivered or lying-in women during the years 1929 to 1934.

### The Blood and Spinal Fluid in Barbituric Acid Poisoning

Drs. Voss and Fretwurst of Brambeck Hospital, Hamburg, have undertaken in ten cases of barbitol poisoning and one of phenobarbital poisoning the study of comparative quantitative determinations of the barbituric acid content in the erythrocytes, blood plasma, cerebrospinal fluid and urine. No barbituric acid derivants were present in the erythrocytes. On the other hand, substantial quantities of barbitol and of phenobarbital could be isolated in the plasma, cerebrospinal fluid and urine. The slow passage of the barbituric acid derivatives from both erythrocytes and fluids makes manifest, according to the interpretation of the authors, that it is a question of simple dialysis. The rest of the spinal fluid observations were for the most part normal. A considerable increase in the spinal fluid pressure was in no case observed. Only one case (severe barbitol poisoning) showed slight increase in albumin content and a slight increase in the number of cells.

### VIENNA

(From Our Regular Correspondent)

Feb. 15, 1936

### Treatment of Joint, Gland and Bone Tuberculosis

In a lecture before the Society of Physicians, Dr. Max Jerusalem discussed the problem of surgery in tuberculosis other than pulmonary. Forty years ago two conflicting attitudes existed with regard to this question: one group called conservative, and another group more favorable toward operations. Soon it was perceived that these questions must be viewed in the light of individual differences not only between patients but between physicians as well. Important too is the nature of the disease, whether fibrous or destructive. In the last decade the conservative procedure has gained many adherents particularly as the importance of heliotherapy and roentgenotherapy has been recognized. The heliotherapeutic stations in Switzerland are well known. Nevertheless in recent years many Swiss specialists have rather turned to surgical treatment, which, if the indication is correct, may save much time and effect speedier cures. Dr. Jerusalem, who has gained vast experience in tuberculosis as a sick insurance physician, states his guiding principles as follows: Treatment of bone, gland and joint tuberculosis should be predominantly and almost entirely conservative. Selection of therapeutic measures must



depend on the particular conditions presented in each separate case. When operative treatment is indicated, one should be guided by the following suggestions: 1 Isolated, not unduly large, firm, movable glandular tumors on the axillae or neck, when refractory to radiotherapy, should be extirpated. 2 Wide electrosurgical opening of small cold abscesses on the thorax or neck should be done, evacuation without drainage (in order to avoid mixed infection), then complete suture and, after primary healing, roentgenotherapy. 3 Bone sequestrums should be removed only if spontaneously projecting outward in a necrotic state or as foreign bodies lying in the soft parts. 4 Fungus on tendon sheath that may cause liquefaction should be treated as under 2. 5 Para-articular bone areas may occasionally be removed. This requires a large amount of skill. 6 Resection of the knee joint should be done in adults presenting a shrunken fibrous capsular fungus with erosion of the cartilaginous covering. 7 Amputation should be done in cases of progressive joint processes in aged patients; otherwise treatment should be as conservative as possible. 8 After successful treatment, osteotomy and arthroplasty should be chosen as a secondary operation for the purpose of correcting posture. 9 Contraindicated are simple incision and drainage of a cold abscess, scraping of central bone sequestrums, extirpation of multiple diffuse glands on the neck or axillae and resection of carious ribs, as well as resection of all joints with the exception of the knee joint as indicated.

#### Deaths of Professors Busson and Maresch

In the first days of the new year the Vienna Faculty of Medicine suffered two severe losses. First, a great serologist and bacteriologist, Prof. Dr. Bruno Busson, aged 56, died. At an early age he obtained the doctorate in both philosophy and medicine and then began his career as an assistant to Professor Prausnitz at the Institute of Hygiene, Graz. In 1911 he came to Vienna to work under Professor Paltauf at the Serotherapeutic Institute. During the war he was in charge of a mobile laboratory and thanks chiefly to his efforts no diseases or epidemics were able to gain a foothold among the Austrian troops, even in regions where the surrounding sanitary conditions were of the worst (the Balkans, Russian Poland, Turkey). After the war he resumed his duties at the Vienna Institute and was above all active as director of the Serum Control Center. All serums and vaccines, imported or domestic, were examined by this center. Dr. Busson also headed the institute founded by Paltauf for protective inoculation against rabies. His scientific labors were concerned with the problems of immunization and of experimental medicine.

A few days later Dr. Rudolf Maresch, director of the Pathologic-Anatomic Institute of the University of Vienna, died. Of German-Bohemian extraction, he took his degree at Prague, where he became assistant under Professor Rabe in the Institute of Anatomy. Subsequently he came to Vienna and first worked under Gussenbauer and later under Professor Chrobak at the woman's clinic. Still later he became active in Professor Chiari's Institute of Pathologic Anatomy and finally was appointed senior pathologist for two of the largest hospitals in Vienna. His scientific activity at the University of Vienna gained for him the titles of docent (1911), assistant professor (1916) and professor in ordinary of pathologic anatomy (1923). The internal secretions were his particular interest, although he was also concerned with gynecology and the digestive tract. That he was an able organizer, the construction of the institute's new building under his direction bears ample testimony. The largest lecture hall of the University of Vienna, from the 400 comfortable seats of which the students obtain an adequate view of the specimens, also owes its existence to him. In addition he organized an extremely comprehensive museum, which is one of the sights of Vienna, and placed it at the disposal of the students. Professor Maresch

filled all the high posts within the gift of the university, he was successively dean, rector and president of the Vienna Academy of Science. For the past year he had been afflicted with a carcinoma of the bronchus, which caused his death at the age of 68. His school has attained preeminence as the result of the great number of his former pupils who fill important professional posts throughout middle Europe.

#### ITALY

(From Our Regular Correspondent)

Jan 31, 1936

#### Reunion of Physicians Pertaining to Aviation Medicine

The first national assembly on aviation medicine was recently held in Milan with Professor Cornelli presiding. Professor Herlitzka, a physiologist of the University of Turin, spoke on physiology in high altitudes. The atmosphere can be divided into four zones according to the effects that atmospheric pressure causes on the organism of aviators as they fly into high altitudes. The first zone includes the atmosphere from sea level to an altitude of 4,000 or 6,000 meters. The barometric pressure in this zone ranges between 460 and 400 mm of mercury. Within these limits no noticeable organic disturbances are felt. The second zone reaches an altitude of 8,000 meters above sea level. Its barometric pressure ranges between 250 and 200 mm. This zone is characterized by causing the so-called disease of the altitudes. The third zone reaches an altitude of 14,500 meters above sea level. Its barometric pressure is 95 mm. The preservation of life at this altitude is possible only if respiration is made with pure oxygen or a proper mixture of gases. Above the third zone, that is, in the last and highest layer of the atmosphere, aviation is possible only by isolating the aviator from the surrounding atmosphere by means of an air-tight cabin or of an apparatus similar to a diver's dress, provided in each case with the oxygen supply. The most noticeable deficiency that aviators find in reaching great altitudes is that the diminution of the partial pressure of oxygen of the ambient air causes a diminution also of the tension of the oxygen of the alveolar air, which is the agent for the regulation of the absorption of gas by the organism. However, it has been proved through the experiments of Mosso, Talenti and Margaria that the effects of a low barometric pressure are due not only to the lowering of the partial pressure of oxygen but also to the lowering of carbon dioxide in the blood, which is the agent that causes stimulation of the nervous centers of respiration. The altitude of 14,433 meters above sea level, which Donati reached in his record flight, marks a limit that will be surpassed only by fliers using the air-tight cabin. An altitude of 12,000 or 13,000 meters above sea level can be considered the limit of safety in flying of long duration into great altitudes, provided the aviators breathe a mixture of oxygen.

Professor Gemelli, dean of the Catholic university of Milan, discussed the functions of the pilot from a psychophysiological angle, in relation to the development of aviation. The position of the pilot during flying was first given attention. Orientation with relation to remote points, according to the work performed by Clapadere, Gemelli and Jaccard, is a complicated process in the verification of which memory, attention, comparison and discrimination take a part. The capacity of remote orientation is scanty in human beings. Orientation is lost during flying, such as is the case when one wanders into the wilderness or into the deserts and there is no specific sense or instinct to serve as a guide. The psychic processes use almost exclusively the information given by sight. The latter, however, has a limited field in aviation and errors and illusions are rather frequent. Sight gives orientation when a person moves at a certain speed in accordance to one's proper means of locomotion. At the speed and altitude at which one moves during flying, however, it fails to do so, and the more intense the degree of these two

factors the greater the difficulties related to orientation. That is the reason why orientation should be controlled by the use of proper mechanical apparatus and not by sight. In this connection the selection of candidates is based on their ability in using the necessary apparatus and giving a correct interpretation to the geographic, topographic and meteorological data by which the position of the airship in relation to the surface of the earth can be determined. Far different are the aptitudes required for pilots of military airplanes, especially pursuit planes. This is a problem which deserves especial consideration.

### Zone of Quiet for Clinics

A session was recently held in the senate to discuss a law tending to control the noise caused by automobiles in the streets. Dr. Devoto of the Clinica del Lavoro of Milan pointed out the importance of such a law to the public welfare, especially the sick. He also pointed out how advisable it would be to surround clinics, hospitals and schools that are located in the city and cannot be moved to less noisy places by a zone of quiet.

### JAPAN

(From Our Regular Correspondent)

Jan 31, 1936

### Report on Changes in the Medical System

The Japan Medical Association has presented the long anticipated report on the reform of the general medical system in this country. The first necessity, the report says, is to secure complete unity of the governmental administrative units. The administrative medical setup at present is separated roughly into three large sections, under the control of the Home Office, the Communication Office or the Agricultural and Forestry Office. The lack of unity among those three offices has caused many controversies affecting the smooth working of the medical administration. The most urgent need is to authorize the Health Office to deal with all medical administration independently of the other offices. The second important problem is that of the relation between the family doctor and the patients which is undergoing rapid changes as the social tide flows now this way and now that. The old system of the family doctor has many advantages over the new relation, which tends to convert the relation into that of a commercial transaction. To be humane and not to be inhumane is an important part in medical treatment. The family doctor is well acquainted with the domestic conditions of every family, which aids in promoting mutual understanding. Any family doctor always has been and always will be glad to give his time to patients when required. The patient has the right of free choice of physician and that fact has been convenient to those whose daily life has not been systematized. When a patient is temporarily unable to pay a bill, the family practitioner will wait without causing much trouble. Such an inseparable relationship naturally leads to doctors rather than government officials doing social relief work. Therefore the fundamental medical system should be based on the old system of the family doctor.

On the other hand, the development of various health unions is the present social tendency and the medical association must recognize their value and help their sound development. The most essential factor in those health bodies is a system permitting the free choice of physician by the members. Every new plan for medical treatment should be based on the original object instead of support through fees for treatment. For instance, the hospitals attached to medical colleges or universities should again be hospitals where clinical research is done without any idea of profit. The public or charity hospitals should treat indigent patients free at present some of them are trying to raise more or less money by the treatment. At the same time, hospitals and clinics should be established and managed by medical men to avoid the commercialization of medicine. Thirdly, the distribution of doctors should be regu-

lated by the government, and where there is no doctor in remote places a government doctor should be available or the local community should have a doctor at its own expense and those doctors should be pensioned when they retire. In order to have its own doctor, the locality may send a medical student to college and pay his school expenses. Next in importance is the rationalization of medical fees, which should be on a different plane from commercial transactions. The medical fee should be estimated by the kind of sickness, that is, by the amount of medical labor, but the financial condition of the patients should be taken into consideration. As this fee has some relation to social economy and the national health, a standard fee is essential to avoid businesslike competitive methods. Those who are too poor to pay the medical fee are to be aided through relief societies.

It is no less important to readjust and control the various relief projects and bring them under the central authorities. At present they are independent and so the initial cost and the expense of their maintenance prevent them from being adequately equipped. Much more equipment is needed by the various public bodies where chief work must be preventive medicine. The idea of sanitation should prevail among the people in every home, and that is best brought about by the family physician. The promotion of school hygiene also is better achieved when every practitioner participates in it.

Next comes the problem of medicines and chemicals, which have recently increased greatly in number. The value of some of them is likely to be overestimated through the lack of proper institutes for testing them. A research department should be established to examine them and regulate their production and price, even the price of those manufactured in government factories is prone to be high when sold through middlemen or brokers.

Lastly, it is desirable for the government to establish a fixed policy in medical education. At present there is a tendency toward an overproduction of medical men. Every student after graduation from medical college should pursue clinical training for a reasonable period, and then those who wish to be specialists should be trained for a longer period in clinics. The medical association must have its own research institutes for this purpose.

### The Increase in Physicians

The number of medical men in 1934 has been officially reported as 55,086, an increase of 2,224 over the previous year. In 1932 there were 50,069. Those in practice numbered 49,308, a decrease of 543 as compared with those in 1933. This decrease is believed to have been due to the revision of the medical law, which partly limited the establishment of new clinics. On an average a population of 1,383 had one practitioner, in cities 803 in smaller localities 2,082. The number of dentists was 18,998, while in 1933 it was 17,984, an increase of 1,014. Of these 17,622 were in practice. 258 dentists to 10,000 population were in practice. The number of pharmacutists was 23,283 an increase of 1,481, as compared with the previous year. The number of midwives was 58,270 and of nurses 102,921.

### Increase in Beds for Lepers

The Home Office has announced a ten year program of raising the number of beds for lepers to 10,000. The present number of beds is 6,450 in all the country while the number of lepers is over 15,000.

### Personals

Dr. Minoru Sasaki, assistant professor in the Manchurian Medical College, has been appointed chief professor in the otorhinolaryngologic section of the Kyushu Imperial University.

Dr. I. Inada, dean of the medical college of the Manchurian Railway Company, was obliged to retire and Prof. Dr. S. Kubota will be the new dean.

## Marriages

WILLIAM MARION HAIL, Bay St Louis, Miss, to Miss Ella Robinson of Centreville, February 19

JOHN WILLIAM DRAPER JR to Miss Mary Willcox Ayres, both of New York, February 7

BERNARD LEE MELTON to Miss Marie Rhea Linsenmeyer both of Phoenix, Ariz, in February

HERMAN I SWITZES, New York, to Miss Lillian Tepper of Washington, D C, March 29

BANNISTER LESTER HARBIN to Miss Jane E Goodwin both of Rome, Ga, February 11

RAYMOND J KENNEDY to Miss Bernice Elaine Sitar both of Joliet, Ill, February 11

JOSEPH H PARKS, Monroe La, to Miss Vina Gallman of Rayville, January 18

WALTER M KRAUS to Miss Victoria Bowe both of New York, Dec 20, 1935

RICHARD L I KIMM to Miss Margaret Pennington both of Chicago, March 23

HARRY PARKS to Miss Sylvia Mendel, both of Atlanta, Ga, recently

## Deaths

Charles Jefferson Miller ♂ professor of gynecology, Tulane University of Louisiana School of Medicine, New Orleans, died, March 21, of coronary thrombosis, aged 62. Dr Miller was born in Winchester, Tenn, Feb 9 1874. He attended Terrill College and the University of the South Sewanee, Tenn, and received his medical degree from the University of Tennessee Medical Department, Nashville in 1893. After serving an internship at the Nashville City Hospital, he did postgraduate work in London and Berlin. In 1911 he was appointed professor of gynecology at Tulane University of Louisiana School of Medicine and later professor of abdominal surgery at the graduate school of medicine. From 1908 to 1911 he was secretary of the Section on Obstetrics, Gynecology and Abdominal Surgery, then known as the Section on Obstetrics and Diseases of Women, and chairman from 1911 to 1912 of the section, then known as Obstetrics and Gynecology, of the American Medical Association. He was a founder, past president, a member of the board of regents and a life member of the American College of Surgeons, member and past president of the American Gynecological Society, Southern Surgical Association and the Orleans Parish Medical Society, and president of the Southeastern Surgical Congress. Dr Miller was a senior visiting surgeon to the Charity Hospital, New Orleans, and chief of the department of gynecology, Touro Infirmary, and formerly a member of the board of control of the Leper Home of Louisiana now known as the United States Marine Hospital (National Leprosarium). He was also a member of the Medical Reserve Corps of the U S Army, and president of the Howard Memorial Library.

Charles Louis Chassaignac, New Orleans, Tulane University of Louisiana Medical Department, New Orleans 1883, formerly professor of genito-urinary diseases and president of the New Orleans Polyclinic, and dean and professor of genito-urinary and rectal diseases after that school became the Tulane University Graduate School of Medicine, member of the House of Delegates of the American Medical Association in 1905, 1906 and 1910, member and past president of the Louisiana State Medical Society, past president and secretary of the Orleans Parish Medical Society, served as a member of the board of appeals of the draft board during the World War for eight years superintendent of the Eye, Ear, Nose and Throat Hospital, at one time consulting surgeon to the Charity Hospital, editor of the *New Orleans Medical and Surgical Journal* 1896-1922 translated from the French the monograph by Touatre on yellow fever, aged 74, died March 21.

Edward Bradford Dench ♂ New York, College of Physicians and Surgeons Medical Department of Columbia College, New York, 1885, professor of otology, University and Bellevue Hospital Medical College from 1898 to 1930, at which time he became professor emeritus, member and past president of the American Laryngological, Rhinological and Otolological Society, past president of the American Otolological Society and the New York Otolological Society, honorary member of

the Royal Society of Medicine of London and the Austrian Otolological Society, fellow of the American College of Surgeons, served during the World War, consulting aural surgeon to the New York Eye and Ear Infirmary, consulting otologist to St Luke's Hospital and New York Orthopedic Dispensary and Hospital, aged 72, died, February 21, of cerebral hemorrhage.

Sylvester Richard Leahy ♂ New York, Yale University School of Medicine, New Haven, 1905, at one time instructor in neurology, Columbia University College of Physicians and Surgeons, and instructor in psychiatry and clinical professor of psychiatry, University and Bellevue Hospital Medical College, member of the American Psychiatric Association, secretary and past president of the New York Society for Clinical Psychiatry, police surgeon, formerly attending neurologist to the Holy Family and St Peter's hospitals, consulting neurologist to the Brooklyn State and Kings Park hospitals, director of the mental clinic, Catholic Charities, and associate visiting neurologist and psychiatrist, St Vincent's Hospital, aged 53, died January 29 of heart disease, in the Harkness Pavilion of the Columbia Presbyterian Medical Center.

Henry Ware Cattell, Burlington, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1887, demonstrator of morbid anatomy at his alma mater 1892-1897, director of the Aver Chemical Laboratory, Pennsylvania Hospital, Philadelphia, 1899-1901, served during the World War, at various times pathologist to the Blockley Hospital, now the Philadelphia General Hospital, and the Presbyterian Hospital, Philadelphia, in 1929 delegate to the International Congress of Military Medicine and Pharmacy in London, editor of *International Clinics*, 1900-1903, 1910-1916 1922-1932, editor of 'Lippincott's Medical Dictionary' in 1910 and 1913, translator of Ziegler's *Special Pathological Anatomy*, 1896-1897, aged 73, died, March 8, in the Veterans Administration Facility, Washington, D C of heart disease.

Arthur David Holmes, Detroit, McGill University Faculty of Medicine, Montreal, Que, Canada 1889, member of the House of Delegates of the American Medical Association, 1911-1912 for many years trustee and past president of the Wayne County Medical Society, president of the Detroit Academy of Medicine 1901-1902, vice president of the Mississippi Valley Medical Association, 1911-1912, and trustee of the Detroit Tuberculosis Society, fellow of the American College of Physicians, formerly professor of otology, rhinology and physical diagnosis Detroit College of Medicine and Surgery, served during the World War, consultant to the Children's Hospital and the Woman's Hospital, aged 72, died, February 20, of cerebral hemorrhage.

Donald Putnam Abbott ♂ Chicago, Rush Medical College, Chicago, 1910, associate clinical professor of medicine at his alma mater, intern at the Cook County Hospital, 1910-1911, did graduate work in Vienna in 1914, member of the Central Society for Clinical Research, Institute of Medicine of Chicago, and the Society of Internal Medicine of Chicago, served in the medical corps of the U S Army in France during the World War, author of the chapter on "Carcinoma of the Stomach" in Tice's *System of Medicine*, aged 51, attending physician to the Presbyterian Hospital where he died, March 26, of pulmonary embolus following bronchopneumonia.

James Sproat Green ♂ Elizabeth, N J, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889, past president of the Medical Society of New Jersey and the Union County Medical Society, fellow of the American College of Surgeons, served during the World War, formerly member of the city board of health, consulting surgeon to St Elizabeth Hospital, Elizabeth General Hospital, Elizabeth, Bonnie Burn Sanatorium, Scotch Plains, and the Rahway (N J) Hospital, aged 71, died, January 30, of carcinoma of the stomach.

James Clement Harkins, New York, University and Bellevue Hospital Medical College, New York, 1903, member of the Medical Society of the State of New York, at one time adjunct professor of pediatrics, Fordham School of Medicine, served during the World War, member of the medical advisory committee, Department of Hospitals, New York, served in various capacities on the staff of the Fordham Hospital, consulting pediatrician to St Joseph's Hospital, Yonkers, N Y, aged 54, died, February 18, of bronchopneumonia and chronic myocarditis.

Cyrus Burns Craig ♂ New York, Western Reserve University Medical Department, Cleveland, 1911, assistant clinical professor of neurology, Columbia University College of Physicians and Surgeons, member of the American Neurological Association and the Association for Research in Nervous and

Mental Disease, served during the World War, aged 52, consultant in neurology, Fordham Hospital, New York and the Paterson (N J) General Hospital, associate medical director of the Neurological Institute, where he died, February 24, of carcinoma

**Edgar Bright Funkhouser**, Trenton, N J Jefferson Medical College of Philadelphia, 1900 member of the Medical Society of New Jersey past president and secretary of the Mercer County Medical Society member of the American Psychiatric Association, served during the World War, aged 66 senior resident physician at the New Jersey State Hospital, where he died, January 26, of coronary sclerosis

**Patrick Joseph Kennedy**, Long Island City N Y, Queens University Faculty of Medicine Kingston Ont Canada 1911 member of the Medical Society of the State of New York on the staffs of St John's Hospital Long Island City Queens General Hospital Jamaica and the Manhattan Eye and Ear Hospital, New York, aged 49, died, January 21, in Daly's Astoria Sanitarium

**McCluney Radcliffe** Philadelphia University of Pennsylvania Department of Medicine Philadelphia 1882 for many years associated with the Wills Hospital and the Presbyterian Hospital in various positions consulting ophthalmologist to the State Hospital, Norristown trustee of Lafayette College Easton, Pa aged 81, died February 28 of pneumonia

**Charles Dun Pedrick**, Glassboro, N J Medico-Chirurgical College of Philadelphia, 1900, member of the Medical Society of New Jersey, past president of the Gloucester County Medical Society, served during the World War for twenty-one years medical examiner of the public schools of Glassboro aged 73, died January 24, of cerebral hemorrhage

**Samuel Johnson Cogswell**, Derry N H University of Vermont College of Medicine Burlington, 1897, member of the New Hampshire Medical Society, past president of the Rockingham County Medical Society, health officer of Derry on the staff of the Alexander-Eastman Hospital East Derry, aged 60, died January 18 of pneumonia

**Joseph Ellis Skaggs**, Leavenworth Kan University of Louisville (Ky) School of Medicine 1915 member of the Kansas Medical Society president of the Leavenworth County Medical Society formerly county coroner aged 50 on the staff of the Cushing Memorial Hospital, where he died January 20, of carcinoma

**Joseph Anthony Cooke**, Meriden Conn Yale University School of Medicine New Haven, 1897 member of the Connecticut State Medical Society health officer of Meriden formerly mayor aged 69, died January 22 of bronchopneumonia, cerebral hemorrhage and hypertension

**Charlotte Hooper Phillips**, New York Columbia University College of Physicians and Surgeons, New York 1930 member of the Medical Society of the State of New York on the staff of the New York Infirmary for Women and Children aged 31, died January 23 of pneumonia

**Curtis Harrod Thomson**, Seattle, University of Virginia Department of Medicine, Charlottesville, 1897 member of the Washington State Medical Association, secretary of the Washington State Medical Association served during the World War, aged 61, died, March 7

**Fenton Blakemore Whiting**, Richmond Beach Wash Cooper Medical College, San Francisco 1891 member of the Washington State Medical Association fellow of the American College of Surgeons, aged 69, died, January 15 of hypertension and cerebral hemorrhage

**Harold Walter Longwell**, Avoca, N Y University of Buffalo School of Medicine 1929 member of the Medical Society of the State of New York health officer aged 33, died, January 23, in a hospital at Bath of cerebral hemorrhage and chronic nephritis

**Daniel Traverso**, Belmar N J University of Arkansas School of Medicine Little Rock 1926 member of the Medical Society of New Jersey aged 36 on the associate staff of the Pitkin Memorial Hospital, Neptune where he died January 28 of lobar pneumonia

**Frank Brouwer**, Toms River N J Jefferson Medical College of Philadelphia, 1894, member of the Medical Society of New Jersey formerly county coroner on the staff of the Paul Kimball Hospital, Lakewood aged 65 died, January 24, of arteriosclerosis

**Edward Buckley Campbell** Albany N Y Albany Medical College, 1918, instructor in otolaryngology at his alma mater on the staffs of the Childs Hospital and the Albany Hospital aged 45, died January 22, of pneumonia

**Thornton Austin Moore**, Holly Springs, Miss, Memphis (Tenn) Hospital Medical College, 1903, member of the Mississippi State Medical Association, aged 53, died, January 17, in Memphis, Tenn, of coronary thrombosis

**Percy J Farmer** St Louis, Washington University School of Medicine St Louis, 1899 on the staffs of the Missouri Baptist De Paul and the City hospitals, aged 57, died suddenly, February 9, of heart disease

**Kalman S C Von Haitinger**, Clifton, N J American College of Medicine and Surgery, Chicago, 1905, on the staff of the Beth Israel Hospital, Passaic, aged 53, died suddenly, January 19, of acute cardiac dilatation

**Ulysses Grant Murrell**, Wilmington, Ohio, Miami Medical College, Cincinnati, 1896, at one time state senator, and registrar of vital statistics, state board of health, aged 67, died February 11 of cerebral hemorrhage

**Nicklaus Albert Rennison**, Waukegan, Mich, State University of Iowa College of Medicine Iowa City 1934 physician at the CCC Camp, Sturgeon River, aged 29, died Dec 19, 1935, of acute pulmonary edema

**Benjamin Thomas Bryant**, Tyler Texas (licensed in Texas under the Act of 1907), member of the State Medical Association of Texas county health officer, aged 68, died, January 9, in a local hospital, of heart disease

**Frederick Atkins Moore**, Chicago, University of West Tennessee College of Medicine and Surgery, Memphis, 1916 aged 46, died, Dec 25, 1935, of carcinoma of the intestine with metastasis to the liver

**Sidney Dale Porter** Baton Rouge, La Tulane University of Louisiana Medical Department New Orleans, 1894 on the staff of the Baton Rouge General Hospital, aged 61, died, February 8

**Thomas Hinckley Willard** New York, Albany (N Y) Medical College 1887, aged 73 died, January 25 in the Doctors Hospital, of bronchopneumonia and arteriosclerotic heart disease

**Clinton Roath** Los Angeles California Eclectic Medical College, Los Angeles, 1911, aged 52 on the staff of the California Hospital where he died, January 26, of carcinoma of the stomach

**Pasquale Leonard Turi**, Jersey City, N J Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1911, aged 49, died, January 29, in St Francis Hospital, of agranulocytosis

**Hazel Belle Krumhar**, Cleveland, Woman's Medical College of Pennsylvania, Philadelphia, 1935, aged 35, intern at the City Hospital, where she died, January 22, of pneumonia

**John R Boyd** Oakdale, W Va College of Physicians and Surgeons Baltimore 1893, for many years mayor, formerly justice of the peace, aged 71 died, January 20, of heart disease

**James H Tinsley**, Willard Mo Ensworth Medical College St Joseph 1887 aged 76 died, January 18, in Cave Springs, of influenza and pneumonia

**Ira Abbey Wheeler** Colton Calif, California Eclectic Medical College San Francisco 1894, aged 74, died, January 2 of arteriosclerosis and heart disease

**James William Hanan**, Kansas City Mo, College of Physicians and Surgeons Keokuk, Iowa, 1881 aged 82 died January 7 of chronic myocarditis

**Pascal Whitney McConnell**, Winona, Minn Rush Medical College Chicago, 1900, aged 65 died, January 17, of angina pectoris and chronic myocarditis

**Moses Alexander Morrison**, Fresno, Calif University of Nashville (Tenn) Medical Department, 1897, aged 74 died January 7 of coronary disease

**William Burt Reed** Rochester N Y University of Buffalo School of Medicine, 1896, aged 66, died, January 19, of chronic myocarditis

**Burr C Thomas** Farmington Mich, Detroit College of Medicine 1895, aged 65, died, January 30, of carcinoma of the stomach

**Nettie D Morey Errant**, Chicago Woman's Medical College Chicago, 1885, aged 79 died January 19, of bronchopneumonia

**Frank Woodland Taylor**, Oakland Calif, Halifax Medical College, Halifax, N S, Canada, 1900, aged 64, died, January 2 of uremia

**Raymond E Butz** York Pa Medico-Chirurgical College of Philadelphia 1898 also a minister, aged 71 died January 22

**Eldridge G McAlvin**, Haleburg, Ala (licensed in Alabama in 1892), aged 92 died, January 24, of pneumonia

## Correspondence

### "COPPER AND PIGMENTATION OF SKIN AND HAIR"

*To the Editor*—The editorial "Copper and Pigmentation of Skin and Hair" (*THE JOURNAL*, February 22, p. 629) is the subject of this communication. In a discussion at the meeting of the Illinois Medical Society in 1933 (*Illinois M J* 64:80 [July] 1933) I described the case of a woman, aged 21, seen by Dr. Cleveland White and myself, in whom darkly pigmented moles appeared on the skin following copper therapy. The patient, who had a mild anemia, received ferric ammonium citrate 3 Gm and copper sulfate 15 mg daily for four weeks. The pigmentation appeared two weeks after treatment was begun. The lesions consisted of brown and black pigmented macules and papules varying from the size of a pinpoint to the size of a small pea. They were most numerous on the neck but also occurred on the face, the upper part of the trunk and the extremities.

I saw the patient today, and there has been no tendency for the moles to fade or disappear. The moles on her face (eight in number) were very annoying at first, but she has since become accustomed to them. The patient, who is a registered nurse, is absolutely certain that the pigmentation was a direct result of the copper and iron therapy.

In view of the experimental evidence presented in the editorial, it seems that copper was instrumental in the production of the pigmentation in this patient. If this observation is correct, the indiscriminate use of copper therapy may lead to some embarrassing medicolegal problems.

HOWARD L. ALT, M.D., Chicago

### TREATMENT OF ALCOHOLISM WITH CARBON DIOXIDE-OXYGEN INHALATION

*To the Editor*—I read with interest the paper of Newman and Card (*THE JOURNAL*, February 22, p. 595), in which is reported the experimental investigation of the striking effects obtained by Robinson and myself in the treatment of acute alcoholism with 10 per cent carbon dioxide and 90 per cent oxygen inhalation. In order that the reading medical public may be made aware of the actual value of their report, it should be pointed out that the facts on which they base their conclusion are subject to the following criticisms:

1. In reviewing the literature readily available, references contradicting their opinion are not mentioned. Barach is quoted as stating that the lethal dose of alcohol for rabbits was the same in an atmosphere of oxygen as it was in air. They do not mention that Palthe (*Alcohol Poisoning, Deutsche Zeitschr f. Nervenh.* 92:79-100, 1926) found that the inhalation of oxygen prevented death in rabbits that had been given alcohol in doses that were lethal to control animals.

2. Barach (*Action of Oxygen in Counteracting Alcoholic Intoxication, Am J Physiol* 107:610-615 [March] 1934) is only partially quoted. They do not mention that he gives evidence which in his own words "suggested that the inhalation of oxygen counteracted to some extent the effects of alcohol."

3. Their number of experimental subjects was extremely small, consisting only of two human beings and three dogs.

4. They ran no controls whatever to check their experimental results.

5. Neither of their human subjects was sufficiently intoxicated to produce much more than an odor of alcohol on the breath (Turner, R. G. *Blood Alcohol and Its Relation to Intoxication*

in Man, *Proc Soc Exper Biol & Med* 32:1548 [June] 1935). Turner states that, in general, intoxication is not noticeable in man until the blood alcohol concentration is greater than 0.2 per cent. In Newman and Card's human subjects at the onset of the administration of carbon dioxide and oxygen inhalation the blood alcohol concentration was only 0.2 per cent in the first case and considerably less in the second. In our cases the lowest blood alcohol concentration was 0.338 per cent and the highest 0.654 per cent. It is quite possible that at these higher levels the effect of carbon dioxide and oxygen inhalation is much more marked in human beings than at the low level reported by Newman and Card.

6. They attempt to draw clinical conclusions from dogs—drunken canines—though they state specifically that they are not interested in the clinical point of view.

7. They do not take into account sufficiently the possible effect of carbon dioxide and oxygen inhalation on intracellular oxidation (Wright Samson, *Applied Physiology*, ed. 5, New York: Oxford University Press, 1935).

The title of the paper and its conclusions are misleading in that they suggest that a rational basis for the use of carbon dioxide and oxygen inhalation in acute alcoholism does not exist. The subject deserves more intensive study before the shadow of doubt is cast on the value and efficacy of this therapeutic procedure.

SYDNEY SELFSNICK, M.D., Boston

### NERVOUS COMPLICATIONS FOLLOWING SPINAL ANESTHESIA

*To the Editor*—The report on nervous complications following spinal anesthesia by Brock, Bell and Davison (*THE JOURNAL*, February 8) leads us to suggest a slight change in the technic of spinal anesthesia which we are convinced is of definite value.

The modification that we advise has been employed by us in more than 600 low spinal anesthetics and apparently has afforded the following advantages: 1. It limits the effect of the anesthetic to the lower part of the spinal cord, thereby preventing fall in blood pressure and vomiting, which up to the time we began the technic now employed had been a rather frequent and disturbing factor. 2. Localization of the anesthesia makes it possible to lessen by about one third the amount ordinarily used. 3. There have been practically no nervous complications following spinal anesthesia obtained in this manner. All anesthetics in our group were for low operations such as external urethrotomy, transurethral resections of vesical neck obstructions and fulguration of extensive tumors of the bladder. Higher and satisfactory anesthesia might be obtained by the same technic except that the anesthetic in such cases should be injected at a higher point. A preparation of procaine hydrochloride with strychnine sulfate known as spinocaine was the only type anesthetic used. This preparation is lighter than the spinal fluid which feature is most essential to our technic. After the needle has been inserted into the spinal canal and the spinal fluid begins to flow the table is tilted to lower the patient's head 15 degrees before the anesthetic is injected. Then the syringe containing the anesthetic is attached to the needle and an equal volume of spinal fluid is drawn into the syringe and mixed with it. Then two thirds of this mixture is injected into the canal and again some fluid is withdrawn, this time only about one half the volume. This mixture is then injected into the canal. We have attributed our lack of nervous complications to this diluting admixture of spinal fluid with the anesthetic before the injection. The solution reaching the nerve roots is thereby rendered less concentrated and hence less irritating than if it were not so diluted.

The lowering of the head we are convinced affords a valuable method of localizing the anesthetic to the lower part of the



spinal canal When the head is lowered the mild venous congestion causes an increase in intracranial pressure, which prevents any flow of anesthetic toward the head after the injection. The anesthetic, being lighter than spinal fluid, tends to flow toward the lower end of the spinal canal.

Soon after the adoption of this plan we thought it was probably only a coincidence that we no longer saw the reactions that we hitherto had attributed to idiosyncrasies and so on. The striking features incident to this technic were the exceedingly small number who vomited and the maintenance of satisfactory blood pressure. Usually within about ten minutes anesthesia is complete. If not, perhaps not more than five minutes' additional waiting may be required.

If Drs. Brock, Bell and Davison will try this technic we feel certain that they soon will have less fear of nervous complications and less nausea and vomiting during spinal anesthesia.

EDGAR G. BALLENGER, M.D.      OMAR F. ELDER, M.D.  
HAROLD P. McDONALD, M.D.      Atlanta, Ga.

### CONGENITAL DEFECTS

*To the Editor*—The interesting article regarding congenital defects appearing in *THE JOURNAL*, February 8, page 457, may cause some to assume that there were no previous data regarding the greater frequency of the occurrence of congenital defects among siblings. Maude Abbott has published some statistics regarding this increased frequency (in *Osler Modern Medicine*, ed. 3, Philadelphia, Lea & Febiger, 4:626) and I found the same in a small group (*The Causation and Prevention of Congenital Heart Disease, Arch Int Med* 48:721 [Nov.] 1931). Dr. Murphy has nevertheless presented some new statistics of value.

WILLIAM D. REID, M.D., Boston

### TOXICITY OF BORIC ACID

*To the Editor*—An American woman, aged 45 and weighing about 135 pounds (61 Kg.), was operated on for prolapse of the uterus and bladder and rectocele. At 9 p.m. the same day, 1 quart (1 liter) of saline solution was ordered given subcutaneously as she had lost some blood although she was in an entirely satisfactory condition. Almost two hours was consumed in taking the solution. When the nurse returned to the supply room she discovered that the patient had been given 1,000 cc. of 2 per cent boric acid solution, being a total of about 20 Gm. (310 grains). Nothing whatever occurred during the night that indicated she was suffering from ill effects caused by the solution.

Early the following morning examination of the urine for boric acid showed a very marked reaction, both by the sulfuric acid alcohol method and by the turmeric paper method. At 4 p.m. and at 8 p.m. the same day specimens were taken and they were markedly positive by both methods. On the second day, examinations of the urine made at 4 a.m., 8 a.m. and 4 p.m. were all positive but not so marked; specimens were concentrated, 75 per cent. On the third day, specimens taken at 4 a.m. and at 4 p.m. showed positive by the sulfuric acid alcohol method and negative by the turmeric paper method although the concentration was 75 per cent. On the fourth day, only a trace was shown by the sulfuric acid alcohol method and a negative reaction by the turmeric paper method. On the fifth day, specimens were negative by both methods.

Never at any time did the patient have more than a slight trace of albumin and a few casts in the urine. As far as could be observed, it did not affect her in any way. She had no symptoms of gastrointestinal irritation such as cramps, diarrhea or nausea except that she did vomit once, four hours

after the administration. As this was the first postoperative night she may have vomited from the anesthetic.

Dr. R. W. Webster in "Legal Medicine and Toxicology," page 405, reports that death has occurred in three and one-half hours but usually does not happen for a few days after the intake of these substances. He cites the following:

In the cases of McNally and Rust from three to six grams proved fatal to six infants while fifteen grams of boric acid was fatal to an adult and Birch reports the death of an infant who had consumed one and a half drachms (5.6 cc.) of sodium borate and boric acid in the form of honey of sodium borate and glycerin of borax while Potter describes a case of fatal borax poisoning in an adult from the taking of something over an ounce of borax in mistake for a saline laxative.

W. L. BROWN, M.D.      J. L. MURPHY, M.D.  
C. P. BROWN, M.D.      El Paso, Texas

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### TYPHOID MENINGITIS

*To the Editor*—Can you give me some information relative to typhoid meningitis? In all available literature I find little reference to such a condition. Mrs. J. J. aged 30, mother of five children, was taken ill about September 15 with lassitude, pain in the back and legs and occasional bouts of fever. This persisted until I first saw her on September 27 at which time she was comatose. At no time had she complained of headache, visual disturbances, nausea or abdominal pain or diarrhea. I did a lumbar puncture September 28. The fluid was bloody and under decreased pressure. Laboratory reports for spinal fluid showed cloudiness and gram positive bacilli on a stained slide preparation, a colloidal gold curve of 0011110000. Pandey's reagent negative and ammonium sulfate reagent negative. A Widal test was positive on a blood specimen. A blood culture report has not been returned. For the last ten days (since September 28) the patient has been in coma except for periods of an hour or two on the second, fifth and eighth days. Neck rigidity appeared on the second day of coma. The Babinski, Chaddock and Oppenheim signs were noted as positive on the fourth day in coma. The abdomen was soft. No eye signs have been noted. Repeated lumbar punctures have shown decreased spinal fluid pressure. Using undiluted spinal fluid in the counting chamber 850 cells were estimated per cubic millimeter. A specimen obtained two days later (September 30) showed cells too numerous to count. The fluid was undiluted. A white blood count has been consistently around 8,900. The urine has contained a moderate amount of albumin but no casts, bacterial or blood cells. The temperature has ranged between 99 and 103 F. Three days ago the patient emerged from coma and has been rational since. Neck rigidity and pain in the back are still present. Two days ago she had diarrhea for a few hours which has not been noticed since. May one expect sequelae from the meningitis if such a diagnosis is correct? About how much more intestinal involvement may one expect? What are the incidence, prognosis and mortality of typhoid meningitis? What are common sources of infection other than drinking water and milk?

F. G. Slattery, M.D., Clare, Mich.

*ANSWER*—True typhoid meningitis is extremely rare. When it occurs, the spinal fluid is purulent and the typhoid bacillus may be isolated from it. It is practically certain that a patient with this condition will not survive. Sometimes in the course of an attack of typhoid, meningitis develops which is found to be due to other organisms than *Bacillus typhosus*. The meningococcus and also the tubercle bacillus have been reported as causative agents under such circumstances.

Serous meningitis in typhoid occurs more often than true typhoid meningitis. In the former, the condition is attributed to the action of the toxins of the typhoid bacilli. The organisms themselves are not found in the spinal fluid in this type of meningitis and a fatal termination to the disease is not necessarily imperative.

Meningitis is much more common in typhoid than any form of meningitis. Although symptoms suggestive of meningitis are present including some stiffness of the neck, there are no pathologic changes in the spinal fluid to substantiate the presence of meningitis.

Since the laboratory report on the spinal fluid of the patient states that the organism found was gram positive it would seem that the bacillus could not be the causative agent of typhoid which is gram negative. As the colloidal gold curve was normal and the globulin tests negative, one unacquainted with the patient might wonder whether the gram-positive

bacillus was not a contamination. If there is no true meningitis but merely meningism, the cell count reported might possibly be explained by the presence of blood in the spinal fluid.

It does not seem likely that the patient has typhoid meningitis; neither the laboratory report nor the improvement in her condition supports such a diagnosis. Several standard textbooks on medicine quote Cole, who collected thirteen cases of typhoid meningitis from the literature, all of these patients died.

If the patient's meningeal symptoms can be explained on the basis of meningism, no sequelae need be expected.

Two weeks is too early in the course of typhoid to make an estimate with regard to the extent of intestinal involvement that may be expected.

Sources of typhoid infection in addition to drinking water and milk may be the use of contaminated water for washing milk cans, uncooked vegetables or fruits. Uncooked vegetables, such as celery and radishes, may be contaminated if not thoroughly cleansed, contact with typhoid patients or typhoid carriers may result in transmission of the disease. Flies from outhouses may act in a mechanical way in carrying infection to uncooked foods, or to prepared foods after they are placed on the table for eating.

#### PAIN IN AMPUTATION STUMP IN PATIENT WITH MORPHINE ADDICTION

To the Editor—A man aged 58 has been suffering from severe burning pain in the stump of the right leg radiating up the course of the nerve trunks for six months since amputation at the junction of the upper and middle thirds of the tibia for gangrene of the foot, which originated from an injury to the right great toe. Because of chronic myocarditis the amputation was done under local anesthesia. There is much swelling of the stump and the thigh at times, but there are no other signs of vascular disturbance and this is relieved by hot applications and diathermy. The blood Wassermann test is negative. Repeated blood Wassermann and Kahn tests are negative. The spinal fluid Wassermann test is negative and the colloidal gold test is negative. The blood sugar is 154 mg per hundred cubic centimeters. Roentgen examination of the tibia and fibula shows evidence of a low grade periostitis. The urinalysis shows one plus albumin, few epithelial casts and granular casts and is otherwise negative. Red blood cells number 4,100,000, hemoglobin is 70 per cent, white blood cells number 8,900, polymorphonuclears 65 per cent, lymphocytes 32 per cent, eosinophils 1 per cent, monocytes 2 per cent. The basal metabolism rate is plus 5. It requires 1 or 2 grams (from 0.065 to 0.13 Gm.) of morphine daily to relieve the pain. The patient has gone for a period of six weeks without any opiates of any kind but experienced much pain. Examination of the stump reveals atrophy of the stump and retraction of the tissues. There are no palpable nodules (neuroma) present. Could it be possible that the nerves were not cut off high enough and that they have been caught up in the scar tissue? In view of the fact that the patient is unable to stand another amputation at the present would it be advisable to inject the nerves with alcohol and would this relieve the pain? What would be the best therapy in treating the patient to get him off the morphine since he has already become an addict if the injection of the nerves will relieve the pain? What would probably be the cause of the swelling of the stump and thigh since there is no other evidence of vascular disturbance. Anti-syphilitic treatment has been tried in the face of a negative Wassermann reaction but has not seemed to do any good. Any suggestions regarding the etiology and therapeutics in this case would be greatly appreciated. Please omit name.

M D Georgia

ANSWER—It is difficult to come to any definite conclusion in regard to the diagnosis in this case because changes that go with such diagnoses as thromboangiitis obliterans, other peripheral vasomotor disease or diabetes are not described. It is necessary to determine the presence of a pulse in the popliteal space of the right knee, and dorsalis pedis and popliteal pulse in the left lower extremity, as well as to make oscilometric studies of the vessels of the thigh and skin temperatures.

One of two conditions may be responsible for this picture. The evidence seems to point to a thromboangiitis obliterans of the vessels of the right lower extremity and that the patient continues to have symptoms of activity in the stump and thigh because he has rest pain in the stump as well as swelling of the stump and thigh. The periostitis is suggestive of some infection. The other condition is diabetes mellitus. The evidence here presented does not warrant such a diagnosis. The following regimen is suggested: absolute rest in bed, elevation of the stump and thigh, several injections (three or four) of typhoid and paratyphoid vaccine intravenously, with careful determinations of the skin temperature of the right stump and thigh as compared with the left leg and thigh, both before and after the injection. This will indicate the amount of vascular dilatation that takes place in the stump as well as relieving pain in the stump.

If pain persists, lumbar sympathectomy, chordotomy or injection of the peripheral sensory nerves with alcohol above the stump may be considered. The patient should take a gallon of Ringer's solution daily by means of a Rehfsuss tube.

The treatment of the morphine addiction should not be attempted until the treatment of the difficulty with the right stump and thigh has been completed. The following regimen is suggested: gradual daily reduction of the morphine, 12 to 15 units of insulin four times in twenty-four hours, sedation for a good night's rest with amytal or phenobarbital, large quantities of liquid and a highly caloric and palatable diet, and sugar solutions by mouth or vein for any symptoms of hypoglycemic shock that may appear following the insulin. This regimen should be carried on daily for from seven to ten days.

#### INTRAPLEURAL PRESSURE

To the Editor—1 In a healthy normal pleural cavity what is the greatest negative pressure attained (marked inspiration with the glottis closed)? 2 What is the greatest possible intrapleural pressure (marked expiration on coughing with the glottis closed)? 3 What is the ordinary variation in intrapleural pressure (ordinary inspiration and expiration with the glottis open)? Please omit name.

M D, New York

ANSWER—1 Forcible inspiration increases the negative pressure in the pleural cavity whether the glottis is open or closed. There is a greater negativity with the glottis open, in fact, so much that the water of the manometer would be aspirated into the chest cavity at times, or beyond a readable point on the water manometer, which is usually about 20 cm of water. The extent of negativity could reach as high as 30 mm of mercury, or about 30 + cm of water. With the glottis closed, however, there is little expansion of the lung, but there is a falling of the intrapulmonary pressure from rarefaction of air, and the intrapleural pressure falls with it, but to the extent only of a few millimeters of mercury or centimeters of water.

2 As stated, the usual water manometer on a pneumothorax machine measures about 20 cm of water pressure, and here again the positive pressure would be so great under the conditions stated, namely, a marked expiration on coughing with the glottis closed, that the water manometer would be exploded, but when measured in mercury it would be something like 30 mm or higher, depending on the force of the cough.

3 The ordinary variation of intrapleural pressure on ordinary inspiration and expiration with the glottis open, on inspiration, is from minus 6 cm of water to minus 10 cm of water, but the variation may be as low as minus 4 cm of water to minus 20 cm of water, at the height of inspiration. On expiration, the manometer would read from minus 4 to minus 8 cm of water, and sometimes may be as low as minus 2 to minus 12 cm of water.

The question reads for the reading of pressure in a healthy, normal pleural cavity, but the greatest clinical experiences in the reading of pressure within the pleural cavity are made under pathologic conditions, pulmonary tuberculosis in the main, in patients who come for treatment of their condition by means of artificial pneumothorax. Still, the pressure would not vary much from the normal, healthy pleural cavity.

#### TREATMENT OF CHLORINE GASSING

To the Editor—The Committee on Hazards from Use of Chemicals in Water Works Plants of the American Water Works Association is making an investigation of first aid treatments for victims of chlorine gassing with a view to making the following recommendations for treatments: (1) a simple method of first aid that can be used even in the smallest water works plant; (2) the most effective method of first aid regardless of how expensive the equipment may be.

H H GERSTEIN Sanitary Engineer Chicago

ANSWER—1 A simple method of first aid, which can be used even in the smallest water works plant.

First aid to patients gassed with chlorine may be applied in the absence of equipment if the following principles are considered: (a) Remove the patient from the toxic atmosphere promptly, (b) loosen all constricting clothing about the neck, (c) keep the patient absolutely quiet in a recumbent position, do not allow him to move, regardless of how free from symptoms he may appear a few minutes after gassing, (d) conserve body heat by keeping the patient warm with blankets, applying artificial heat in the form of hot water bottles, if available, (e) stimulants in the form of hot coffee and brandy are useful, (f) obtain the services of a physician as soon as possible.

These simple instructions should be posted about water purification plants in which liquid chlorine is used. The necessity for having a satisfactory gas mask available wherever chlorine cylinders are handled is obvious.

2 The most effective method of first aid, regardless of how expensive the equipment may be.

Wherever the hazard justifies, there should be a specially equipped safety or first aid room, and personnel trained in

caring for gas casualties should be available. Individuals gassed with chlorine should be carried to the first aid room immediately. In addition to the measures outlined in paragraph 1, facilities should be available for the administration of oxygen and venesection.

Oxygen should be administered in all cases. Do not wait for cyanosis to develop. The administration of oxygen will often prevent cyanosis and relieve the pain of deep inspiratory effort. Special oxygen masks or tents should be available for this purpose.

Venesection is an extremely valuable measure and should be performed early on all patients who have been exposed to heavy concentrations of chlorine. Its early use will often prevent the development of edema of the lungs and if used later it often relieves pulmonary edema and cardiac embarrassment. The early intravenous administration of dextrose or physiologic solution of sodium chloride given slowly in moderate amounts may be combined with venesection to combat shock and reduce the viscosity of the blood. Bleeding is contraindicated, however, in those cases which have reached the gray stage of anoxemia with pallor, collapse, and rapid, thready pulse.

Drugs are of secondary importance in the treatment of chlorine gas poisoning. Some authorities advise morphine for the pain and excitement that follow soon after injury, but it is agreed that morphine is contraindicated in the presence of pulmonary edema and respiratory embarrassment. Atropine and epinephrine are without effect and neither digitalis nor strychnine has been of much benefit. Brandy is useful as a stimulant. Caffeine in the form of hot coffee or hypodermic injection of caffeine with sodium benzoate is of value. Hypodermic injection of camphor in sterile oil is useful in serious cases.

The importance of early and efficient treatment of chlorine gassing should be constantly stressed, since the critical period is usually short, and most patients who live for twenty-four hours survive.

#### TREATMENT OF SYPHILIS

*To the Editor*—I am interested to learn when it would be safe to discharge a patient with syphilis as cured. The patient came under another physician's care in October 1933 with a chancre diagnosed by dark field and positive Wassermann reaction. The physician administered then twenty intravenous injections of neoarsphenamine and thirty intramuscular injections of sodium bismuth thioglycollate. The Wassermann reaction became negative. After a short rest of two weeks twelve more injections of neoarsphenamine and twenty of the bismuth compound were given. After another rest of one month twelve more injections of neoarsphenamine and twenty of the bismuth compound were given. A lumbar puncture was done and the cerebrospinal fluid examined. The cell count, protein, colloidal gold and Wassermann tests were all negative. To play doubly safe eight more injections of neoarsphenamine were given plus eight injections of sodium bismuth thioglycollate and twelve of insoluble bismuth the latter at weekly intervals. The patient is eager to take all the treatment to avoid any possibility of recurrence. His blood Wassermann reactions are repeatedly negative. All together he has been treated almost constantly for eighteen months. Is it safe now to dismiss the patient as cured? Kindly omit name. M D Nebraska

*ANSWER*—The best time for the treatment of syphilis is to begin immediately after an early diagnosis by dark field examination. At this early seronegative stage a permanent cure can be attained in a high percentage of infected individuals. This percentage decreases with delay in the treatment.

A cure requires at least eighteen months of continuous therapy with arsphenamine and compounds of bismuth or mercury. Twenty doses of arsphenamine and twenty doses of bismuth salicylate in from forty to fifty weeks are needed to assure permanent noninfectiousness. Thirty injections of the arsenical and from thirty to sixty injections of a bismuth compound in the first two years should be the therapeutic objective to prevent recurrence and late manifestations of syphilis. With such treatment, involvement of the aorta and central nervous system, which are the two most serious forms of late syphilis, can be prevented as well as other forms of latent syphilis. A "cure" will be attained of about 90 per cent of patients with a primary lesion. In latent syphilis the length of time necessary for a cure is more than eighteen months to two years.

This patient has received a total of fifty-two injections of neoarsphenamine and ninety injections of bismuth in eighteen months. The dosage per injection is not mentioned. With an average dosage this is sufficient to prevent late manifestations and it exceeds the quantities recommended by syphilologists at present. The Wassermann test and spinal puncture should be repeated every year, and a short course of treatment of ten doses of arsphenamine and ten of bismuth or mercury compounds each year for three years would be advisable.

#### BASS JOHNS BLOOD COUNTING CHAMBER

*To the Editor*—Please send me directions for the use of a Bass Johns blood counting chamber. P E PARKER M D Johnson City Tenn

*ANSWER*—The Bass Johns blood counting chamber is described in the book on Laboratory Diagnosis by Bass and Johns, Rebman Company, 1917.

The counting chamber consists of a heavy object slide on which a small oblong counting plate is cemented. The Bass ruling in the middle of the counting plate consists of a square of 2 mm size. This is divided into ten 0.2 by 2 mm rectangles for counting leukocytes. For counting erythrocytes there are superimposed on the ruled space at each corner and in the center five 0.2 mm squares, each further divided into sixteen 0.05 mm squares. The cubic contents of the entire ruled space 0.1 mm deep, is 0.4 cu mm. The total cubic contents of the five large squares is 0.02 cu mm.

Pipets for dilution are used as with any other counting chamber. All the leukocytes in the ten rectangles are counted. Multiply by 250 to get the number per cubic millimeter when a dilution of 1 to 100 has been used. If a 1 to 20 dilution is used, multiply by 50. In counting the erythrocytes, there are five large squares each ruled into sixteen small squares. The red cells in all five large squares are counted. The total number in the five large squares multiplied by 5000 equals the number of cells per cubic millimeter when a dilution of 1 to 100 is used.

#### PYODERMIA AND IRRITANT DERMATITIS

*To the Editor*—There is no dermatologist near and I am sending a patient's picture. Lesions began about seven weeks ago as small pimples and drained pus. I did not see him until about three weeks ago. Mercurochrome was just put on the lesions. When I saw the patient the skin was scablike and the nodules ran pus. He had some pain. Wet dressings were applied and the skin came off the lesions cleared up with the exception of nodules as in the picture. Today he has pain and they are coming out again. The patient has had one application of x-rays but I think there is too much inflammation to continue. I could not get a good potassium hydroxide mycelium test. The lesions are limited to the dorsum of the forearm from the wrist to the elbow and do not go any further. Bullae, erythema multiforme and blastomycosis or some fungus may be in order. Is it blastomycosis? I am using potassium iodide and sulfur dioxide pastes. Can you tell me what this is? M D Colorado

*ANSWER*—From the description and photograph this man apparently has a pyoderma that is superimposed on an underlying irritant dermatitis. The eruption is sharply defined over the dorsum of the hands and at the elbows and suggests a reaction to some external irritant which might be a chemical household or occupational contact. The possibility of a plant irritant from contact with foliage in the man's environment has to be considered.

The clinical picture as shown in the photograph does not simulate blastomycosis. Erythema multiforme might be an underlying condition on which the pyoderma is superimposed. In erythema multiforme, however, other lesions would be present about the trunk, face and possibly the anogenital area.

The ingestion of drugs should be ruled out and the surface infection treated with mild antiseptic wet dressings such as aluminum subacetate solution, 1:16 or 1:1000 mercurinol or 1:5000 metaphen solution. After the acute dermatitis has subsided the use of 2 per cent ammoniated mercury ointment, gradually increasing to 5 per cent, can be used. Local infected areas may be painted with 3 per cent aqueous gentian violet solution. The patient's general condition should be built up with hematinics and vitamin A and B by mouth.

#### DIAGNOSIS OF DEATH FROM DROWNING

*To the Editor*—A girl aged 19 years was found floating in a creek near here. She left her home at 9 a m and was found about 5 p m the same day. Rigor mortis had set in. Would the fact that she was floating preclude the possibility of her having drowned as the cause of death? Could a person be drowned and immediately say within an hour rise to the surface and continue to float until found? What factors determine how soon a drowned person rises to the surface? I will appreciate your answering this as promptly as you possibly can. Please omit name if published. M D Texas

*ANSWER*—The fact that the body was floating when found would not exclude death from drowning. The specific gravity of the human body immediately and soon after death would be practically the same whether death has resulted from drowning or from some other cause. Drowning per se can have no special influence on the floatage of a dead body.

Generally speaking the body of a drowned person would not rise to the surface within say one hour after drowning and continue to float for some hours afterward but such a possibility under certain circumstances cannot be denied. In the case in

question was the body buoyed up by clothing? How deep was the water and was the depth uniform and without any shallow places? Was there a strong current? Were there any stakes or other objects in the water that might support the body? Occasionally dead bodies of women have been found floating a few inches under the surface while some of the clothes rested on the surface of the water.

Obviously a variety of factors come into play in the rising to the surface of a human body after submersion in water: the depth, specific gravity, motion of the water, the amount of fat on the body and its clothing as well as internal conditions that may affect the rate of decomposition climatic and seasonal conditions. It is said that in warm climates and in summer, bodies may rise on the first day, but this is quite exceptional.

#### GYNecomastia

*To the Editor*—A man aged 47 a lathe worker in a copper utensil manufacturing plant for the past year has noticed a gradual increase in the size of the right breast until at present it is nearly twice as large as the left breast. There are no nodules no puckering of the skin over the breast and no enlargement of glands or retraction of the nipple, which appears normal. The substance of the breast feels normal transillumination is negative. There is no pain or distress in or around the breast. It seems normal in every respect except for the increase in size. In the man's work the stick that holds the cutting tool of the lathe presses against the right side of the chest and has caused from time to time soreness and some localized edema in the lower part of this breast which disappears after a short time. There is no edema at present. I should like to know whether the local irritation could be the cause of this condition or of any other possible causes.

L. S. McMILLAN M.D. Rome N. Y.

*ANSWER*—The patient is probably suffering from unilateral gynecomastia. Gynecomastia is a disorder of the male breast in which the gland tends to assume the size, shape and sometimes function of the female breast. The condition may be either unilateral or bilateral. The enlargement is sometimes accompanied by secretion. Two distinct types are recognized: (1) cases associated with an abnormal sexual function and sometimes demonstrable testicular defects, and (2) cases in which no abnormality of the sexual function is demonstrable. Examples of gynecomastia in which the enlargement of the breast appear to bear an etiologic relationship to a previous trauma are recorded in the literature, but the relationship between the enlargement of the breast and the trauma cannot be stated with absolute certainty. The possibility of trauma acting as the contributing cause must be entertained. At the same time it should be stressed that the condition usually occurs in the absence of demonstrable trauma.

#### TIME OF DAY FOR HEAVY MEAL

*To the Editor*—Given the following circumstances would you kindly inform me whether the heavier meal should be served at dinner or supper: 1 Breakfast at 7:15 a.m. work from 8 to 12 noon. 2 Dinner at 12:15 p.m. work from 1 p.m. to 4 p.m. 3 Supper at 5:15 p.m. rest until lights out at 9:30 p.m.

M.D. Montana

*ANSWER*—The eating of the larger meal in the evening or at noon is largely a matter of individual preference, habit and convenience. Many men find it inadvisable to eat the large meal at noon because this makes them sleepy for two or three hours afterward. The lighter lunch the more wide awake they are for the afternoon's work. A physician will sometimes advise a patient to eat a light meal in the evening because he may then get a better night's rest. This is particularly true for the patient with a diseased gallbladder who tends to be distressed and bloated after a large meal.

#### EFFECTS OF OIL OF PEPPERMINT

*To the Editor*—Does the administration of natural oil of peppermint in doses of from 2 to 5 minims (0.1 to 0.3 cc.) three times a day over several months reduce or alter bile production? Would the synthetic oil be more deleterious than the natural? In two cases in which this dosage was given in connection with the use of dextrose by mouth in large doses the phenomenon of clay colored stools was noted. I shall much appreciate your comments.

H. A. GREENWOOD M.D. Maracaibo Venezuela

*ANSWER*—Oil of peppermint has been shown to have a tendency to increase the secretion of bile, but it would have to be used in larger dosage to have any marked effect. If by synthetic oil of peppermint is meant a peppermint oil that has been enriched by the addition of menthol so as to come up to the official requirements, it is obvious that the effect of this oil will be the same as that of the "natural" product. If the dose of dextrose is very large, it might have some effect in making the stools lighter colored.

#### TYPHOID TRANSMISSION BY RECTUM

*To the Editor*—Is there any known reference to typhoid transmission by rectum? As in an epidemic in an institution is it possible to transmit the disease by the use of improperly or unsterilized rectal tubes? Please omit name.

M.D. Pennsylvania

*ANSWER*—There does not seem to be any record of transmission of typhoid by way of the rectum through the use of tubes contaminated with typhoid bacilli. The possibility that typhoid can be transmitted in that way, of course, cannot be denied.

#### POSSIBLE REACTION FROM HAIR WASHES

*To the Editor*—Please give me your opinion as to what reaction might result both local and constitutional from the following procedure: A solution of 12 Gm. of sodium sulfite and 8 ounces (236 cc.) of water is applied to the hair with a piece of cotton and left on from six to twelve hours. The hair is then washed with soap and water, rinsed with plain water and then rinsed with a solution of tartaric acid U.S.P. 12 Gm. to a gallon of water. The tartaric acid solution is then immediately rinsed off with plain water. Please omit name.

M.D. California

*ANSWER*—The solution of tartaric acid is obviously used to remove the last traces of sulfurous acid odor from the hair. Neither local nor constitutional reaction is likely to follow such treatment unless the patient's skin is hypersensitive.

#### ANTI-TYPHOID INOCULATION

*To the Editor*—Would you kindly tell me the latest method of typhoid vaccination? I have always used three weekly increasing doses subcutaneously. I understand there is now an intracutaneous method similar to the one used in diphtheria but I have no information whether it is efficient. What is your opinion? Please omit name.

M.D. Minnesota

*ANSWER*—No new method of preventive antityphoid inoculation has been introduced into practice.

#### TRYPARSAMIDE DERMATITIS

*To the Editor*—In *Queries and Minor Notes* (THE JOURNAL February 29, p. 726) in answer to a question on skin reactions with arsenicals the statement is made that tryparsamide is the only one of the commonly used organic arsenicals that does not cause skin eruption. In the *American Journal of Syphilis and Dermatology* (18:308 [July] 1934) a report of a case of tryparsamide dermatitis with a survey of the literature was presented. The patient developed a classic exfoliative dermatitis with redness and edema of the skin, signs of toxicity, fever, universal scaling and loss of hair after three injections of tryparsamide. A. L. Skoog (Tryparsamide Therapy in Neurosyphilis, *J. Missouri M. A.* 22:387 [Oct.] 1925) reported that dermatitis in a mild form was seen but once in a summary of a thousand injections of tryparsamide in a series of cases. J. R. Phelps (Reactions Incidental to the Administration of 191,778 Doses of Neoarsphenamine and Other Arsenical Compounds in the U.S. Navy, *U.S. Nav. M. Bull.* 27:205 [Jan.] 1929) observed one mild skin complication in a study of 4,488 doses of tryparsamide. Other scattered instances were noted in the literature. Although the frequency of skin reactions due to the use of tryparsamide is very small nevertheless this complication must be borne in mind.

LOUIS J. BRAGMAN M.D., Binghamton N. Y.

#### ALLERGY TO TRYPARSAMIDE

*To the Editor*—In THE JOURNAL February 15, page 564, I observed a notation stating that there are no records of allergic reactions following the use of tryparsamide. While the question of just what constitutes an allergic reaction may be a moot one and drug idiosyncrasy does not fulfil by far the requirements of true allergy, severe reactions of this type have been reported. In April 1934 (*Brit. J. Ven. Dis.*) I briefly reported a case of severe nitritoid reactions to tryparsamide. I have recently seen in my private practice a similar case in which definite urticarial reactions following tryparsamide also developed. The patient had previously been similarly intolerant to neoarsphenamine. The history of the reactions was interesting. After the eighth injection of tryparsamide he was slightly nauseated. After the thirteenth slight flushing of the face and a few wheals on the neck and forearms were noticed. These were controlled by atropine until the eighteenth injection when the Bezredka technic was instituted. Despite all precautions however the urticaria gradually became more severe and became generalized at the thirty-first injection. Following this and two subsequent injections it was accompanied by nitritoid reactions of increasing severity but controlled by epinephrine. The tryparsamide was discontinued after the thirty-third injection because of the intensity of the reaction and at the present time the patient who has asymptomatic dementia paralytica is receiving fever therapy.

FRANK E. CORNIA M.D. Montreal

#### DERMATITIS DUE TO RUBBER GLOVES

*To the Editor*—I have read with considerable interest the query in the February 29 issue, page 730. What can be done for dermatitis produced by the use of rubber gloves? Being bothered with a similar condition for the past year I began experimenting and have found that bathing and steeping the hands in a saturated solution of boric acid just before and following the use of the gloves is very helpful. I have made at a point also to dust the hands well with talcum powder before putting on the gloves.

T. C. BAILLY M.D. San Francisco

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**AMERICAN BOARD OF OTOLARYNGOLOGY** Kansas City Mo May 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
**AMERICAN BOARD OF PEDIATRICS** Kansas City Mo May 9 Sec Dr C A Aldrich 723 Elm St Winnetka Ill  
**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** St Louis Mo May 8-9 Sec Dr Walter Freeman 1028 Connecticut Ave Washington D C  
**AMERICAN BOARD OF RADIOLOGY** Kansas City Mo May 8-10 Sec Dr B R Kirkin Mayo Clinic Rochester Minn  
**AMERICAN BOARD OF UROLOGY** Kansas City Mo May 8-10 Sec Dr Gilbert J Thomas 1009 Nicollet Ave Minneapolis

### New York June Examination

Mr Herbert J Hamilton, chief Professional Examinations Bureau reports the written examination held in Albany Buffalo, New York and Syracuse June 24-27, 1935. The examination covered 9 subjects. An average of 75 per cent was required to pass. Six hundred and fifty two candidates were examined 541 of whom passed and 111 failed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
University of Arkansas School of Medicine	(1932)		1
Yale University School of Medicine	(1935)		1
George Washington Univ School of Med	(1934-5)	(1935-5)	10
Georgetown University School of Medicine	(1934-3)		3
University of Georgia School of Medicine	(1934)		1
Loyola University School of Medicine	(1935-2)		2
Rush Medical College	(1930)	(1934)	4
Tulane University of Louisiana School of Medicine	(1934-2)		2
Johns Hopkins University School of Medicine	(1935)		1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1935-7)		7
Boston University School of Medicine	(1935-5)		5
Harvard University Medical School	(1934)		1
Tufts College Medical School	(1934)		1
Univ of Michigan Medical School	(1932)	(1933)	6
University of Minnesota Medical School	(1934)		1
St Louis University School of Medicine	(1934-2)	(1935-4)	6
Washington Univ School of Med	(1935)	(1934)	6
Creighton Univ School of Med	(1935)	(1934-2)	5
University of Nebraska College of Medicine	(1935-2)		2
Albany Medical College	(1935-8)		8
Columbia University College of Physicians and Surgeons	(1933)	(1934-5)	65
Cornell University Medical College	(1935)	(1935-5)	16
Long Island College of Medicine	(1931)	(1935)	73
New York Homeopathic Medical College and Flower Hospital	(1934-6)	(1935-3)	39
New York University University and Bellevue Hospital Medical College	(1933-4)	(1934-6)	10

New York University College of Medicine	(1935-85)	85	
Syracuse University College of Medicine	(1933) (1935-31)	32	
Univ of Buffalo School of Medicine (1933)	(1934) (1935-43)	45	
Univ of Rochester School of Med (1932)	(1934) (1935-21)	23	
University of Oklahoma School of Medicine	(1933)	1	
Hahnemann Medical College and Hospital of Philadelphia	(1931)	2	
Jefferson Med Col of Philadelphia (1932)	(1934) (1935-2)	4	
Temple University School of Medicine	(1933) (1934-2)	3	
Univ of Pennsylvania School of Med (1929)	(1932) (1935-3)	1	
Woman's Medical College of Pennsylvania	(1935)	1	
Medical College of the State of South Carolina (1932)	(1935-2)	2	
Marquette University School of Medicine	(1935)	1	
University of Wisconsin Medical School	(1932)	1	
Dalhousie University Faculty of Medicine	(1934) (1935-2)	2	
Queen's University Faculty of Medicine	(1931) (1935-2)	2	
Univ of Toronto Faculty of Medicine (1928)	(1931) (1933-3)	3	
McGill Univ Faculty of Medicine (1933)	(1934) (1935-3)	3	
Medizinische Fakultät der Universität Wien (1932)	(1934-7)*	8	
Deutsche Universität Medizinische Fakultät Prag	(1927)	1	
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1934-2) (1935-4)*	6	
Univ de Paris Faculte de Medecine (1932)*	(1933)* (1934)*	3	
Albert Ludwigs Universität Medizinische Fakultät Freiburg	(1930)* (19-4)*	2	
Albertus Universität Medizinische Fakultät Königsberg (1933)*		1	
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1930) (1932) (1934-2)*	4	
Hamburgische Universität Medizinische Fakultät (1932)*	(1934)*	3	
Hessische Ludwigs Univ Medizinische Fakultät Giessen (1932)		1	
Ludwig Maximilians Universität Medizinische Fakultät München	(1935)*	1	
Schlesische Friedrich Wilhelms Universität Medizinische Fakultät Breslau	(1930)*	1	
Universität Heidelberg Medizinische Fakultät (1933)*	(1934)*	2	
Regia Università degli Studi di Padova Facoltà di Medicina e Chirurgia	(1932)	1	
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1929)	1	
Licentiate of the Royal College of Physicians of Edinburgh and of the Royal College of Surgeons of Edinburgh	(1935)*	1	
Licentiate of the Royal College of Physicians of Edinburgh of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow	(1933-2) (1934-2)	3	
University of Edinburgh Faculty of Medicine (1933)	(1934)*	2	
University of Glasgow Medical Faculty (1934)*	(1935)*	2	
University of St Andrews Conjoint Medical School (1933)	(1934-2) (1935-2)*	5	
Universität Bern Medizinische Fakultät	(1934-2)*	2	
Universität Zürich Medizinische Fakultät	(1935-2)*	2	
School	FAILED	Year Grad	Number Failed
University of California Medical School		(1935)	1
Georgetown University School of Medicine (1931)		(19-3-2)	3
Emory University School of Medicine		(1934)	1
Yonkers University School of Medicine		(1935-5)	5
Northwestern University Medical School		(1933)	1
University of Maryland School of Medicine and College of Physicians and Surgeons		(1935)	1
Boston University School of Medicine (1934-2)		(1935-2)	4
Tufts College Medical School		(1934)	1
University of Michigan Medical School (1933)		(1935-2)	3
University of Minnesota Medical School		(1935)	1
St Louis University School of Medicine		(1935-2)	2
Washington University School of Medicine		(1929)	1
Columbia University College of Physicians and Surgeons		(1935-2)	2
Cornell University Medical College		(1933) (1935-3)	4
Long Island College of Medicine		(1934) (1935-6)	7
New York Homeopathic Medical College and Flower Hospital		(1914) (1935-13)	14
New York University College of Medicine		(1935-2)	2
Syracuse University College of Medicine		(1935)	1
University of Buffalo School of Medicine (1934)		(1935-3)	4
University of Rochester School of Medicine		(1935-2)	2
Hahnemann Medical College and Hospital of Philadelphia		(1931) (1934)	2
Jefferson Medical College of Philadelphia		(1930) (1934)	2
Temple University School of Medicine		(1934)	1
University of Pennsylvania School of Medicine (1933)		(1934)	2
Dalhousie University Faculty of Medicine		(1928)	1
Queen's University Faculty of Medicine		(1935)	1
University of Western Ontario Medical School		(1932)	1
McGill University Faculty of Medicine (1915)		(1935-2)	2
Karl Franzens Universität Medizinische Fakultät Graz (1934)*			1
Medizinische Fakultät der Universität Wien (1931)*		(1933-2)*	2
St Mary's Hosp Medical School Univ of London (1935)*			4
London School of Medicine for Women University of London		(1933)*	1
Université de Paris Faculte de Medecine (1934)		(1935)*	2
Université de Toulouse Faculte de Medecine et de Pharmacie		(1934)*	1
Albert Ludwigs Universität Medizinische Fakultät Freiburg		(1930) (1935)*	2
Friedrich Alexanders Universität Medizinische Fakultät Erlangen		(1930)	1
Friedrich Wilhelm Universität Medizinische Fakultät Berlin		(1930)* (1931)*	3
Hamburgische Universität Medizinische Fakultät		(1935)*	1
Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main		(1933-2)	2
Ludwig Maximilians Universität Medizinische Fakultät Würzburg		(1933)*	1
Schlesische Friedrich Wilhelms Universität Medizinische Fakultät Breslau		(1934)*	1
Universität Köln Medizinische Fakultät		(1932)	1
Westfälische Wilhelms Universität Medizinische Fakultät Münster		(1931)	1



Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia	(1934)*	1
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1934 2)* (1934 3)	5
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1934)*	1
University of Saratov Faculty of Medicine	(1922)*	1
University of Aberdeen Faculty of Medicine	(1935)	1
Universität Bern Medizinische Fakultät	(1934)* (1934)	2
Universität Zürich Medizinische Fakultät	(1934)* (1935)	2
Université de Genève Faculté de Médecine	(1933 2)* (1934)*	3

\* Verification of graduation in process

## Book Notices

**Electroprexia in General Paralysis** By Leland E. Hinsie M.D. Research Associate in Psychiatry New York State Psychiatric Institute and Hospital and Joseph R. Blalock M.D. Senior Physician (Psychiatrist) New York State Psychiatric Institute and Hospital With a preface by Clarence O. Cheney M.D. Cloth Price \$1.25 Pp 90 with 3 illustrations Utica New York State Hospitals Press 1934

This monograph describes the experiences of investigators at the New York State Psychiatric Institute and Hospital in the application of artificially induced fever to dementia paralytica. These workers utilized the short radio waves produced by an ultra high frequency oscillator to reproduce as closely as possible the temperature curves produced by inoculated malaria. Approximately half of the monograph is devoted to a critical analysis of the experiences of other workers in this field. There is an excellent review of the literature dealing with physiologic responses to artificially induced fever.

All of the 105 patients subjected by Hinsie and Blalock to artificial fever therapy exhibited the clinical and laboratory signs of dementia paralytica of the adult type. None had received previously any of the antisiphilitic forms of treatment that are known to be beneficial in dementia paralytica. All were subjected essentially to the same technic from the standpoint of high frequency pyrotherapy. All were selected on the basis of suitability for fever therapy. These requirements were essentially the same as those applied to candidates for malaria therapy.

For purposes of comparison the patients were divided into three groups. The first group consisted of fifty-one patients who were treated by thermotherapy only. The second group consisted of twenty-seven patients who were treated with an equivalent amount of thermotherapy and who received, six months later, either tryparsamide and mercury therapy or a course of inoculated malaria. The third group of twenty-seven patients received a similar course of pyrotherapy, followed immediately by one or more courses of tryparsamide and mercuric salicylate in oil. A comparison of the results attained in the treatment of the group of patients who received thermotherapy alone, with those who received thermotherapy followed six months later by some other form of therapy, revealed that the addition of chemotherapy or malaria therapy after the interval of six months was of little or no benefit. In the third group of patients, treated by thermotherapy followed directly by chemotherapy, the clinical results were distinctly better. The remission rate of the patients of the first two groups one year after treatment was 21.7 per cent while the remission rate one year after the termination of treatment in the third group was 37 per cent.

This monograph will be of particular interest to the neuro-psychiatrist, the syphilologist and those who are engaged in investigations in artificial fever therapy.

**The Phenomena of Life: A Radio Electric Interpretation** By George Crile. Edited by Amy Rowland. Cloth Price \$3.50 Pp 379 with 113 illustrations. New York: W. W. Norton & Company Inc. 1936.

Into this book the author has put most of the biologic investigations and speculations that have interested him over a third of a century. It is interesting reading coming from a busy surgeon but not easy reading. Some doctors take to golf others to bridge while Dr Crile seeks his stimulation and recreation in the profundities of biology. The radio electric interpretation of living processes may not appear very convincing to the biologists, but the tale of Dr Crile's quest "Why did William Landman die?" is a charming one and human even in its incompatibilities and contradictions. The basal metabolic rate does not drop 50 per cent during sleep (p 163). The

human infant has no natural weapons for attack yet he seems to experience both fear and anger (p 187). It may worry the thoughtful to find worry defined as "interrupted stimulation" (p 189). Others may be curious to know how this noted surgeon has "tested in the crucible of the clinic" (p 18) the theory that the armadillo, the snake, the porcupine and the skunk "show little or no fear" and "have simple adrenal-sympathetic complexes" (p 187). Many readers will fail to see that Dr Crile's radio-electric interpretation of life is in any way strengthened by the assertion that "no amount of trauma, no amount of physical injury in an area where the sensory nerves are blocked by local, regional or spinal anesthesia can cause excitation, depression or death" (p 357) for, as a generalization this seems not proved. The author's service to practical surgery is greater than his contributions to the philosophy of biology. But why may not a doctor try his wings in the stratosphere, along with physicists and astronomers? At least to date he broad casts on "autosynthetic cells" and "radiogens" (built on the plan of the solar system), not on free will and God.

**The Principles and Practice of X Ray Therapy** By Ffrangcon Roberts M.A. M.D. M.R.C.I. Physician in charge of the Dauty X Ray Clinic Addenbrooke's Hospital Cambridge. Cloth Price 10s 6d Pp 214 with 115 illustrations. London: H. K. Lewis & Co. Ltd. 1936.

This book presents facts relative to x-rays and their therapeutic applications in a simple and concise manner from which an excellent basis and rational conception for the practice of roentgen therapy may be acquired. Fundamental principles especially are described in an easily comprehensible manner and correlated with practical application. The physical aspects discussed include the nature and source of x-rays, means of production, passage through matter, measure of quantity and quality, surface and depth doses and the methods of application to obtain desired results. Factors explaining the rationale of various technic such as massive, fractional saturation and protracted fractional dose methods are given consideration. Chapters are devoted to the biologic action of x-rays on normal tissues and to the general principles in connection with malignant disease. The quality of radiation as related to therapeutic effect, stimulating doses, radioimmunization, accessory methods of increasing the coefficient of sensitiveness, and preoperative and postoperative irradiation are all discussed briefly. That part of the book covering the practical therapy of particular conditions apparently is intended to give the reader merely a general perspective of the conditions amenable to roentgen therapy. In it, malignant disease in the commoner situations, lymphogranulomas, diseases of the blood-forming organs, hyperthyroidism, nonmalignant diseases in women, diseases of the skin and miscellaneous diseases are given consideration more or less sketchily. Details presented in connection with some of the conditions appear to be out of proportion to those accorded to others. Although the book cannot classify as an exhaustive treatise on the subject it is intended to cover, it forms a valuable reference work on present day practice. With out overenthusiasm it shows what may reasonably be expected from roentgen therapy based on theories grounded on established facts.

**Dyke's Automobile and Gasoline Engine Encyclopedia: The Elementary Principles, Construction, Operation and Repair of Automobiles, Gasoline Engines and Automobile Electric Systems, Including Trucks, Tractors, Motorcoaches and Motorcycles** By V. L. Dyke. Seventeenth edition (Silver Anniversary Edition). Cloth Price \$6 Pp 1311 with illustrations. Chicago: Goodheart-Willcox Company Inc. 1935.

This is a practical book treating on the principles, construction, operation, repairing troubles and remedies of automobiles and gas engines. It is compiled with three general classes of readers in mind—students, repairmen and car owners. The fact that the first edition was published in 1910 and that there have been sixteen editions since then is proof enough that it has served as a reliable reference book for automotive information. The thirteenth edition was completely rewritten, subsequent editions have been revisions of the thirteenth. It has two indexes and the addenda are in three sections. The main body of the book deals with the fundamental principles of the motor car while the addenda cover the modern improvements of various cars. Thumbing through the index and looking up various items listed one finds that almost any subject is considered, for example, there are explanations of ignition systems.

and how to repair them, diagrams of the starter systems, descriptions of superchargers and how they work—all of which and much more is explained in nontechnical language. Quackery is not prevalent in automotive practice, but it appears to creep in in at least one instance. Doubtless every physician has been impressed by the demonstration of the sidewalk salesman selling so-called spark intensifiers. He shows that the spark plug can be made to work even when completely carbonized and filled with oil. In this book there is an explanation why these devices are worthless and a hindrance to perfect performance of the car. The author makes no attempt to evaluate the advertised important features of each make of car which the salesmen use in their sales talks. Any physician who is inquisitive as to the operation of his or any make of car should find this volume a valuable addition to his library.

*Atlas of Human Anatomy with Explanatory Text.* By Jesse Feiring Williams. M.D. Columbia University. Cloth. Price \$2. Pp. 64 with colored illustrations by Franz Frohse, Max Brodel and Leon Schlossberg. New York: Barnes & Noble Inc. 1935.

The first part of this small book is a brief general discussion of the anatomy of the human body by systems. This part evidently was prepared especially for the instruction of laymen and it is illustrated with drawings. The second part of the book comprises about twenty-seven pages of colored anatomic charts, some of which are miniatures of the well known life-size charts prepared by Franz Frohse of Berlin and formerly published in America by A. J. Nyström & Co. of Chicago. In addition the book contains colored charts of the throat, heart, neck and genito-urinary organs made by Prof. Max Brodel of Johns Hopkins University School of Medicine. There are also several colored charts of the brain and skull and of the alimentary tract drawn by Mr. Schlossberg in cooperation with Professor Brodel, by whom the entire series has been carefully revised and corrected where necessary. These charts have been edited and grouped so that related subjects appear close to one another. They are exceptionally clear and well drawn and it is simple to locate on the page the numerous anatomic parts named and indicated by numbers and dotted lines. This handy volume should be interesting to laymen, and also useful to physicians when they have occasion to explain the anatomy of the human body.

*Voprosy obshchey i chastnoy rentgenologii. Sbornik rabot kafedry rentgenologii gosudarstvennogo instituta dlya usovvershenstvovaniya vrachev i Leningrada. Pod redaktsiei Prof. S. A. Reynberga. [Problems of General and Special Roentgenology. Collected Works of Department of Roentgenology of Leningrad State Institute for Training of Physicians.]* Cloth. Pp. 285 with illustrations. Moscow and Leningrad: Izdatel'stvo Akademii nauk U. S. S. R. 1935.

This is the first published volume from this department of roentgenology which was founded three years ago. The contributions consist of investigations in the fields of cardiology, diseases of the gastro-intestinal tract, the central nervous system and the pathology of bones and joints, with special chapters dealing with the use of x-rays in agriculture, the biologic effects of ultrashort waves and the organization of roentgenologic service on trains. The scope and scientific quality of the material presented suggest that roentgenology in the Soviet Union while not technically as far advanced as it is in the United States is making progress.

*The Modern Treatment of Burns and Scalds.* By Philip H. Mitchiner. M.D. M.S. F.R.C.S. Hon. Surgeon to H. M. The King. Cloth. Price \$2. Pp. 64 with 12 illustrations. Baltimore: William Wood & Company, 1935.

This monograph on the treatment of burns is essentially a presentation of the technical details of the author's modification of the tannic acid treatment in the early stages of burns and scalds. The discussion of the causes leading to death in burns and scalds is brief. The author's statement that the absorption of histamine bodies from the damaged tissues is generally accepted as the cause of collapse in the early stages of burns is not entirely in accord with the literature on this subject. The same may be said of his statement that acid burns should be treated with alkaline solutions and that alkali burns should be treated with acid solutions. Such important points as restoration of fluid loss, the transfusion of blood in extensively burned patients who are apparently in good condition, and the restoration of blood chlorides are sketchily dealt with. The author's discussion of the importance of using the proper solution of

tannic acid is to be commended, although it is regrettable that he does not extend this investigation beyond the determination of the concentration of tannic acid. The effect of the pH of the solution is ignored. The principal criticism of the book is the overemphasis on a single method of treating the wound. This is especially apparent in the table of statistics on the mortality of burns and scalds in St. Thomas's Hospital from 1894 to 1932, in which the figures are presented in such a manner as to lead one to believe that a reduction of mortality from 30.8 per cent to 2.4 per cent is to be ascribed entirely to the use of a 2.5 per cent tannic acid solution. These figures are not in accord with some which have been published by other clinicians within recent years and they emphasize again the shortcomings of physicians in the application of statistical methods to clinical problems. The principal value of the book is that it directs attention to an extremely important and, until recently, sadly neglected field of medical and surgical practice.

*Anomaliї rosta i razvitiya. [By] Dotsent B. I. Morgulis. S predislavleniem Prof. V. M. Kogan. Yasnogo. Acta Endocrinologica Ukrainica. Part 5. [Anomalies of Growth and Development.]* Paper. Price 4 rubles 50 kopecks. Pp. 120 with 75 illustrations. Kharkov: Izdanie vseukrainskogo Instituta endokrinologii i organoterapii. 1934.

The monograph is an attempt to present systematically various anomalies of growth and development. The etiology and pathogenesis are discussed and prophylaxis and therapy are suggested. While there is nothing new or original about the observations presented the value of the monograph lies in a rather large personal material of the author.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Pharmacists Liability for Sale of Poisons to Minor—** Martha McGhee, a minor between the ages of 15 and 16 years, in a mood of despondency, determined to commit suicide. After unsuccessfully attempting to purchase poison at three drug stores she succeeded in buying a quantity of bichloride of mercury tablets and a bottle of tincture of iodine from the defendant drug store. She swallowed eight or nine bichloride of mercury tablets and drank the bottle of iodine. Death was averted by prompt medical attention, but the girl was severely injured by the poison. She and her father instituted separate suits against the defendant drug store to recover damages, the cases were tried together, the trial court gave judgments for the plaintiffs and the defendant appealed to the court of appeals of Tennessee, eastern section.

The declarations in each case alleged as causes of action (1) that the employee of the defendant drug store knew, or by the exercise of reasonable care should have known, that the girl was in a state of temporary insanity, that she was likely to take the poison, and that in making the sale the employee thus was directly responsible for the girl becoming poisoned and for the resulting injuries, and (2) that the defendant was negligent through its employee, in selling poison to a minor under 16 years of age, not on the written order of some responsible adult person, a Tennessee statute forbidding such a sale. In thus violating the statute, said the appellate court, the defendant was guilty of negligence per se and if that negligence was the proximate cause of the injuries suffered, the defendant was liable. In the case of *Meyer v. King*, 72 Miss. 1, 16 So. 245, 35 L. R. A. 474, relied on by the court in the present case a mother brought suit against a druggist to recover damages for the death of her son which had resulted from drinking chloroform sold to him by the druggist in violation of a Mississippi statute. Finding that the son had reached the age of discretion and that he knowingly and voluntarily drank the chloroform the court in that case held that his act in drinking the chloroform and not the act of the druggist in selling it to him was the proximate cause of his death. So, in the present case, the court was of the opinion that the act of the girl in swallowing the bichloride of mercury tablets and in drinking the iodine was the proximate cause of her injuries, unless her

reason and memory were, at the time, so far obscured that she did not know and understand what she was doing. The evidence was clear, in the opinion of the appellate court, that the girl voluntarily formed a purpose to end her life by means of poison, that she sought and procured the poison which she thought necessary to accomplish that purpose, and then promptly swallowed the poison with full knowledge of what she was doing and in the belief that it would destroy her life. The record contained no testimony of medical expert witnesses with respect to the mental condition of the girl, and the court could find nothing in the record to afford a reasonable basis for an inference that she was insane or mentally incompetent to the extent that she did not know and comprehend the full import and consequences of what she was doing at the time in question. The appellate court, therefore, reversed the judgments against the defendant and dismissed the suits. *Certiorari* was denied by the Supreme Court of Tennessee—*Eckard's Inc. v McGhee* (Tenn.) 86 S W (2d) 570

**Hospitals Liability for Injury to Pay Patient in County Hospital**—Pursuant to statutory authority Twin Falls County, Idaho, erected and operated a county hospital. Pay patients were admitted and the county derived a profit from the operation of the hospital. Following an appendectomy on the plaintiff a pay patient her physician prescribed an injection of a normal saline solution to be administered by a special nurse. An employee of the hospital gave to the nurse a container containing a liquid similar in appearance to a normal saline solution but which actually contained boric acid. The nurse injected the boric acid solution and severe sloughing resulted. And while in the hospital the plaintiff contracted typhoid fever, which she attributed to her diminished powers of resistance caused by the injection of the boric acid. Thereafter the plaintiff sued the county to recover damages for her injuries. The trial court dismissed the suit and the plaintiff appealed to the Supreme Court of Idaho.

The Idaho statute providing for the erection of county hospitals, said the Supreme Court, merely provides that county commissioners shall have power to erect, or to lease equip and operate a county hospital. The statute imposed no obligation on counties to erect hospitals. It was permissive in character only. Whether or not the county was liable for the negligence of hospital employees in the present case, the court said depended on whether in operating the hospital the county was engaged in a governmental function. A duty is imposed on the county to take care of the indigent sick and otherwise dependent poor. The county might discharge that duty directly or by contract. Having built the hospital to discharge its public and governmental duty, it had the power to utilize any excess facilities it possessed for serving pay patients. In serving pay patients, however, the county was not engaged in the discharge of its public and governmental duty, it was engaged in a private and proprietary business for pay. Its relation to pay patients is the same as the relation of any privately owned hospital toward a patient. The county urged that if it should be held liable for injuries to pay patients it might be embarrassed financially by being required to pay heavy damages. That might prove true, said the Supreme Court, but the remedy lies with the county. It may either carry insurance to protect it against such risks or refuse to accept pay patients.

The county further contended that the hospital was a charitable institution and that the county was not for that reason liable to a pay patient. In answering this contention the Supreme Court of Idaho referred with approval to the case of *Tucker v Mobile Infirmary Association* 191 Ala., 572, 68 So 4 in which it was held that a pay patient in a hospital conducted without profit could recover damages for an injury caused by the negligence of an attending nurse, and to the case of *Mullner v Evangelischer Diakonissenverein of Minnesota Dist of German Evangelical Synod of North America* 144 Minn 392, 175 N W 699, in which a similar principle was applied.

The court concluded, therefore, that in supplying hospital care to the plaintiff the county was acting in a proprietary and corporate capacity and that it was liable for the negligence of the hospital employees. The judgment of the trial court dismissing the plaintiff's suit was reversed—*Henderson v Twin Falls County* (Idaho) 50 P (2d) 597

## Society Proceedings

### COMING MEETINGS

- American Medical Association Kansas City, Mo May 11 15 Dr Olin West 535 North Dearborn St Chicago Secretary
- Alabama Medical Association of the State of Montgomery Apr 21 23 Dr D L Cannon 519 Dexter Avenue Montgomery Secretary
- American Academy of Pediatrics Kansas City Mo May 11 12 Dr Clifford G Grulec 636 Church St Evanston Ill Secretary
- American Association for Thoracic Surgery Rochester Minn May 4 6 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary
- American Association of Anatomists Durham N C Apr 9 11 Dr George W Corner, 260 Crittenden Boulevard, Rochester N Y Secretary
- American Association of Pathologists and Bacteriologists Boston Apr 9 10 Dr Howard T Karsner 2085 Adelbert Road Cleveland Secretary
- American Association of the History of Medicine Atlantic City N J May 4 Dr Edward J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency St Louis May 14 Dr Groves B Smith Beverly Farms Godfrey Ill Secretary
- American Bronchoscopic Society Detroit May 27 Dr Lyman Richards 319 Longwood Ave, Boston Secretary
- American Gastro Enterological Association Atlantic City N J May 4 5 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Absecon N J May 25 27 Dr Otto H Schwarz 630 S Kingshighway Blvd St Louis Secretary
- American Heart Association Kansas City Mo May 12 Dr H M Marvin 50 West 50th St New York Acting Executive Secretary
- American Laryngological Association Detroit May 25 27 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological, Rhinological and Otolological Society Denver May 18 20 Dr C Stewart Nash 708 Medical Arts Building Rochester N Y Acting Secretary
- American Orthopedic Association Milwaukee May 18 21 Dr Ralph A Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Detroit May 28 29 Dr Thomas J Harris 104 E 40th St New York Secretary
- American Psychiatric Association St Louis May 4 8 Dr William C Study State Education Building Harrisburg Pa Secretary
- American Radium Society Kansas City Mo May 11 12 Dr E H Skinner 1103 Grand Ave Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 4 Dr J M Hyman Jr Lakeside Hospital Cleveland Secretary
- American Society for the Hard of Hearing Boston May 26 30 Miss Betty C Wright 1537 35th St N W Washington D C Secretary
- American Surgical Association Chicago May 7 9 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Kansas City Mo May 8 9 Dr Oscar B Hunter, 1835 E St N W Washington D C Secretary
- American Urological Association Boston May 18 21 Dr Clyde L Deming 789 Howard Ave New Haven Conn Secretary
- Arizona State Medical Association Nogales Apr 23 25 Dr D F Harbridge 15 East Monroe Street Phoenix Secretary
- Arkansas Medical Society Hot Springs National Park Apr 27 29 Dr W R Brooksher 602 Garrison Ave Fort Smith Secretary
- Association for the Study of Internal Secretions Kansas City Mo May 11 12 Dr E Kost Shelton, 34 Micheltorens St Santa Barbara Calif Secretary
- Association of American Physicians Atlantic City N J May 5 6 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Coronado May 25 28 Dr F C Warnshuis 450 Sutter St San Francisco Secretary
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## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

#### American Heart Journal, St Louis

11 129 254 (Feb) 1936

- Diastolic Gallop Rhythm. Note on Certain Factors Influencing Prognosis. W P Thompson and S A Levine Boston—p 129
- Pulsus Alternans. Note on Certain Factors Influencing Prognosis. W P Thompson and S A Levine Boston—p 135
- Parasytolic Showing Simple Interference Dissociation. Case I G W Hill Aberdeen Scotland and J D S Cameron Edinburgh Scotland—p 140
- \*The Heart in Emphysema. W B Kountz H L Alexander and M Prinzmetal St Louis—p 163
- \*Clinical Study of Electrocardiogram and of Phases of Cardiac Systole in Pellagra. H Feil Cleveland—p 173
- Electrocardiograms on One Hundred and Sixty Seven Average Healthy Infants and Children. C T Burnett and Evelyn Laura Taylor Denver—p 185
- Minute Volume Determinations in Mitral Stenosis During Atrial Fibrillation and After Restoration of Normal Rhythm. A C Kerkhof Minneapolis—p 206
- Transient Complete Bundle Branch Block. Report of Six Cases. C M Kurtz Madison Wis—p 212
- \*Influence of Posture on Partial Heart Block. H L Alexander and T C Bauerlein St Louis—p 223
- Heart Block Following X-Ray Treatment for Thyrotoxicosis. D N Kremer and L B Laplace Philadelphia—p 227

**The Heart in Emphysema**—Kountz and his associates confine their study to true emphysema such as follows asthma and other obstructive lesions of the bronchi. From their observations it appears that 1 The heart is affected in the majority of patients with emphysema 2 The lesion cardiac hypertrophy with dilatation of the right ventricle when advanced may produce symptoms but probably has no clinical reflection in its earlier stages 3 The cause of the left ventricular hypertrophy remains as yet undetermined 4 There is experimental evidence which indicates that the right ventricular dilatation and hypertrophy occur chiefly in the earlier stage of emphysema when the lungs are in the process of distention, rather than later as generally believed

**Electrocardiograms and Phases of Cardiac Systole in Pellagra**—In Feil's study of thirty-eight cases of moderate to severe pellagra, electrocardiographic abnormalities in the ventricular complex occurred in 50 per cent. In fourteen of these nineteen cases there was no complication that might alter the electrocardiogram (36.8 per cent). The chief abnormalities were inversion of T waves in leads 1 or 2 or both Pardee type of ST and large T waves. Lead 4 was abnormal in twelve of thirty-three cases in which it was recorded (36.4 per cent). Lead 4 was abnormal in four cases with normal leads 1 2 and 3. The QT interval and mechanical systole were prolonged in some cases. These observations suggest that the heart is affected physiologically in pellagra. Twelve hearts (one of which was studied electrocardiographically and dynamically) examined pathologically showed no gross or microscopic abnormality. Roentgenographic changes were lacking in the cases studied.

**Influence of Posture on Partial Heart Block**—Alexander and Bauerlein observed a patient with partial heart block, presumably of organic nature who had a ventricular rate much faster in the upright position than when recumbent. It appears

that this discrepancy is due to vagus effect. Under atropine medication the block (other than a prolonged PR interval) and its attendant symptoms disappeared.

#### American J Obstetrics and Gynecology, St Louis

31 187 368 (Feb) 1936

- Brief History of Obstetrics and Gynecology in Virginia. Presidential Address. M P Rucker Richmond Va—p 187
- Maternal Mortality and Maternal Mortality Rates. J Young London England—p 198
- Clinical and Pathologic Differentiation of Certain Special Ovarian Tumors. Granulosa Cell Carcinoma Arrhenoblastoma Dysgerminoma Brenner Tumor. E Novak and L A Gray Baltimore—p 215
- Subphrenic Collection of Lipiodol Following Injection into Fallopian Tube with Observations on Reverse Gravitation of Pelvic Exudates and Genitophrenic Syndrome in Women. I C Rubin New York—p 230
- Massive Blood Transfusions During Abdominal Operations. B Z Cashman and M H Baker Pittsburgh—p 240
- \*Fibrosis of Placenta. Its Significance in Normal and in Syphilitic Organ. T L Montgomery Philadelphia—p 255
- Operative Treatment of Urinary Incontinence. M Douglass Cleveland—p 268
- Reduction of Mortality in Ectopic Gestation. C A Gordon Brooklyn—p 280
- \*Intraspinal Alcohol Injections and Sympathectomy for Pain Associated with Carcinoma of Cervix. Comparison in Eighty Cases. J P Greenhill and H E Schmitz Chicago—p 290
- Uterine Bleeding. Study Based on Ten Hundred and Forty Eight Cases. A J Rongy A Tamis and H Gordon New York—p 300
- Vesicovaginal Fistula. Management and End Results. L E Phaneuf Boston—p 316
- Premature Separation of Placenta in Private Practice. R L De Normandie Boston—p 325
- Intermediate Repair of Injuries Resulting from Childbirth. S E Tracy Philadelphia—p 335
- Mucocele of Vermiform Appendix. W T Dannreuther New York—p 342
- Wheat Germ Oil (Vitamin E) Therapy in Obstetrics. E M Watson and W P Tew London Ont—p 352
- \*Carcinoma of Retained Cervix or Subtotal versus Total Hysterectomy. J V Meigs Boston—p 358

**Fibrosis of Placenta**—Montgomery reviewed his cases of placental sections studied the histories of the corresponding patients and endeavored to determine what effect the so-called lesion of fibrosis has on the weight of the new-born, what effect it has on the occurrence of stillbirth, and what conditions gave rise to a diagnosis of fibrosis if such is not a pathologic entity. Among the records of 700 placentas examined grossly and microscopically, he found 101 in which mention was made of increase in density of the connective tissue of the villous stroma and fifty-four in which the deposit of fibrous tissue round the fetal vessels of the placenta appeared heavier than normal. A review of the cases in which diagnoses of 'diffuse fibrosis of placental villi' and 'perivascular fibrosis of placental vessels' were made reveals that the fetuses born at or near term were of average weight and that the rate of stillbirth was no higher than could be accounted for by other specific causes. A reconsideration of the histologic sections leads the author to doubt that either one of the lesions described is a pathologic entity. He sets forth several circumstances that confer on the placenta a false appearance of fibrosis: normal variation in architecture between different placentas; variation between individual sections of the same placenta; collapse of the vascular tree of the placenta and states of immaturity of the organ. Particular objection is raised to the practice of loosely applying the term 'fibrosis' to indurated areas of the afterbirth. These areas are found on microscopic examination to be zones of necrosis or of intervillous thrombosis. Attention is directed to lesions of the syphilitic placenta: hyperplasia of the connective tissue stroma and vessel wall alterations. The author finds no disturbances here that can be directly attributed to syphilis as a disease. He interprets these lesions as evidences of arrest of development of the placenta due to arrest of fetal vitality. The same appearances were found in stillbirths of the same period due to other causes.

**Intraspinal Alcohol Injections and Sympathectomy for Pain Associated with Carcinoma of Cervix**—In an attempt to analyze their results with both sympathectomy and alcohol injections for the relief of pain in carcinoma of the cervix, Greenhill and Schmitz selected their first forty sympathectomies and forty alcohol injections. The eighty women had group 3 or group 4 carcinoma of the cervix when they first came under observation. The comparison demonstrates conclusively that better results are obtained by means of intraspinal injections

of alcohol. In addition to the greater incidence of relief obtained by means of the alcohol injections, this procedure is far simpler than sympathectomy. Some women will not be benefited by intraspinal injections of alcohol. Practically all pain associated with carcinoma of the cervix can be relieved except that which is due to involvement of the upper part of the urinary tract in the form of hydro-ureter and hydronephrosis. This complication produces not only pain high up in the renal region but also severe discomfort in the parametrium on the affected side. The authors have not been able to stop this pain by intraspinal injections in the lumbar region. Whether injections made higher up (in the thoracic region) can do this they are not prepared to say, because they have not tried this as yet. Pain in the pelvis in cases of cervical carcinoma due to pyometra can readily be relieved by dilation of the cervix to permit drainage of the uterine cavity. Pain due to invasion of the bladder with or without fistula formation can be relieved by either pelvic sympathectomy or alcohol injection. However, obstruction or invasion of the ureter with hydro-ureter and hydronephrosis cannot be relieved except by nephrectomy. Pain due to extension into the parametrium with fixation can be relieved by alcohol injection but not by sympathectomy. Very late in the disease, pain is felt high up in the abdomen. This is due to extension of the disease above the sacrum into the aortic and iliac glands, the liver and elsewhere. This type of pain cannot be relieved by either sympathectomy or alcohol injections in the lumbar region. It is a good policy to inject alcohol intraspinally in all patients who have severe pain associated with carcinoma of the cervix, because even in women who have a hydronephrosis and other sources of pain some of the pain can be relieved.

**Carcinoma of Retained Cervix or Subtotal versus Total Hysterectomy**—Meigs relates the incidence and nature of cancer appearing in the retained cervix following supravaginal hysterectomy and adds facts to the arguments of the advocates of total or of subtotal hysterectomy. The study itself revealed a lack of understanding of the meaning of total or panhysterectomy and of subtotal or supravaginal hysterectomy. Total or panhysterectomy should mean removal of the entire uterus, fundus, body and cervix. These facts are not universally known or remembered and a questionnaire asking specifically whether the cervix was removed or not in a given hysterectomy was necessary before accurate figures could be obtained. When this fact was established there was a great reduction in the total number of cases discovered. The most important considerations are the large proportion of nulliparas developing cancer of the retained cervix, the large proportion of cases with fibroids in the series and the small occurrence of this cancer as compared to the general impression in the literature of today. Conservative surgery should be the rule, and the life of the patient the most important consideration. Careful examination of the cervix in the operating room before deciding the type of operation to be performed is essential. Total hysterectomy cannot be advocated in every case, but it should be if the reasoning of its proponents is correct. Supravaginal hysterectomy should not be advocated for every case, as a badly lacerated and infected cervix is a menace. The decision should be made by the individual operator in each individual case. Nulliparous cervixes are dangerous, and especially so are the cervixes left behind in nulliparas who have had fibroids.

### American Journal of Ophthalmology, St. Louis

19 93 194 (Feb.) 1936

- Headache From Point of View of the Ophthalmologist W. H. Crisp Denver—p. 93  
 Sympathetic Ophthalmia Part II A. C. Woods Baltimore—p. 100  
 Scientific and Practical Considerations Involved in the Near Vision Test with Presentation of Practical and Informative Near Vision Chart J. E. Lebensohn Chicago—p. 110  
 Studies on Infectivity of Trachoma IV. On Bacteria Cultivable from Trachoma and Clinically Similar Conditions R. W. Harrison and L. A. Julianette St. Louis—p. 118  
 Lipodystrophia Progressiva with Ocular Complications Further Report J. W. Charles and M. H. Post St. Louis—p. 126  
 Ophthalmic Errors H. Barkan San Francisco—p. 129  
 Relation of Accommodation to Suppression of Vision in One Eye G. A. Fry St. Louis—p. 135  
 Nonsurgical Treatment of Nonparalytic Strabismus S. V. Abraham Los Angeles—p. 139  
 Management of Complications in Operation for Senile Cataract H. W. Woodruff Joliet Ill.—p. 146

### American Journal of Surgery, New York

31 193 396 (Feb.) 1936

- Incidence of Gastric Cancer L. I. Dublin New York—p. 197  
 Beginnings of Gastric Cancer J. Ewing New York—p. 204  
 Gastric Cancer Correlation of Roentgenologic and Pathologic Findings L. G. Cole New York—p. 206  
 \*Early Symptomatology and Diagnosis of Gastric Cancer S. Harns Birmingham Ala.—p. 225  
 Anesthesia for Surgery of Gastric Cancer J. T. Gwathmey New York—p. 237  
 Gastric Resection for Carcinoma of Stomach J. S. Horsley, Richmond Va.—p. 240  
 Treatment of Carcinoma of the Stomach Summary of Results F. B. St. John A. O. Whipple and T. S. Raiford New York—p. 246  
 Palliative Irradiation of Inoperable Gastric Cancer G. T. Pack and Isabel M. Scharnagel New York—p. 247  
 Bronchial Catheterization S. A. Thompson New York—p. 260  
 Use of Eupal Soluble in Obstetrics Report of Fifty Operative Cases T. A. Kasseholm and M. J. Schreiber New York—p. 265  
 \*Premedication and Inhalation Anesthesia for Tonsil and Adenoid Operations in Young Children A. Humane and Safe Method J. T. Gwathmey New York—p. 272  
 Early Diagnosis in Abdominal Surgery E. L. Eliason Philadelphia—p. 275  
 Meckel's Diverticulum Analysis of Eighteen Cases Report of One Tumor R. B. Greenblatt E. R. Pund and R. H. Chaney Augusta Ga.—p. 285  
 \*Use of Azochloramid in Infected Wounds R. H. Kennedy New York—p. 294  
 Calculous Anuria J. Schwartz New York—p. 300  
 Congenital Canals and Cysts of Genitoperineal Raphe J. H. Neff University Va.—p. 308  
 Rehabilitation of the Disabled H. H. Kessler Newark N. J.—p. 316  
 Relationship of Phospholipin Metabolism to Thrombo Angitis Obliterans and Its Treatment H. M. Rahinowitz and J. Kahn Brooklyn—p. 329

**Early Symptomatology and Diagnosis of Gastric Cancer**—Harris points out that before the diagnosis of gastric cancer will be made early enough for much hope of cure from surgery most of the articles on ventricular carcinoma in the textbooks on medicine available to the general practitioner will have to be rewritten. The symptoms making up the generally accepted criteria for the diagnosis of cancer of the stomach, i. e., abdominal pain, nausea, vomiting, emaciation and anemia (cachexia), are late manifestations due to ulceration secondary infection and obstruction, and when they occur, in the majority of cases the patient has lost his chance for a cure by surgery or any other method of treatment. The earliest manifestation of gastric cancer in an individual more than 30 years of age, who is otherwise healthy, usually is what he calls "just a little indigestion." If such a person, as soon as he becomes stomach conscious, will consult the most capable gastro enterologist or internist available, who will take time for a thorough study of his case including roentgen examination by an expert roentgenologist, the diagnosis may be made early enough for the patient to be cured by an operation. In a small proportion of cases cancer of the stomach becomes engrafted on gastric ulcer, though it is extremely rare for a duodenal ulcer to become malignant. Therefore, if the individual who has an ulcer of the stomach is not speedily relieved of symptoms, or if there is a recurrence of symptoms after rest and dietary management for a few weeks in a hospital under a capable and experienced clinician, he should have an operation with the hope of removing the precancerous ulcer before it becomes malignant. The annual or semiannual physical examination may reveal symptoms that would cause the well informed physician to suspect cancer of the stomach earlier than now is being done. Therefore, if the public can be taught the need for the annual or semiannual physical examination by capable physicians, there is hope of decreasing the present high death rate from cancer of the stomach.

**Premedication and Inhalation Anesthesia for Tonsil and Adenoid Operations**—Gwathmey believes that the method described is safe because (1) premedication ensures a smooth induction of the anesthesia, (2) the anesthesia is at all times under perfect control, (3) the field of operation is dry and clear, and (4) postoperative contingencies and complications are eliminated. The basis for the technic presented rests on laboratory experimentation and clinical experience. It is desirable to give the child a sodium bicarbonate enema on admission. Thirty or forty minutes before operation, with the patient in bed, pentobarbital sodium dissolved in 1 ounce (30 cc) of water is given by mouth, or rectally in 4 cc of cold water.



if swallowing is difficult. The dose varies according to the age, size and condition of the patient. Generally, in children up to 7 years of age  $1\frac{1}{2}$  grains (0.1 Gm.) of the drug is given, from 7 to 10 years, 2 grains (0.13 Gm.), more than 10 years of age, 3 grains (0.2 Gm.). For adolescents the dose of the barbiturate is preferably increased, or a suitable amount of a morphine derivative may be added. More than 90 per cent of the author's patients are asleep within fifteen minutes. With care in lifting the patient from the bed (which should be accomplished by means of sheets or lifter in preference to hands) to the stretcher, he reaches the operating room asleep. When time is essential, the operation may be performed while the patient is on the stretcher. A small pillow is placed under the shoulders and neck.

**Use of Azochloramid in Infected Wounds**—Kennedy reports the results obtained in 108 cases of various infected wounds treated with azochloramid. Having tried various solutions and concentrations, he now uses only two preparations. Azochloramid solution 1:3,300 in physiologic solution of sodium chloride is used whenever irrigation or a wet dressing is desired. Azochloramid in triacetin 1:500 is used in all other circumstances, particularly for packing and dressing wounds with gauze which has been dipped in it. He suggests their use in the following general surgical conditions: 1 As a prophylactic in unclosed lacerated wounds, whether debrided or not. 2 As a prophylactic, in unclosed compound fractures after debridement. 3 As a prophylactic in abdominal operations, when owing to intraperitoneal infection it is believed advisable only to close the peritoneum and leave the remainder of the wound unsutured but packed with gauze. 4 In infected wounds and abscesses of all types except when gross slough or foreign bodies are present and have not been removed. This does not refer to an abscess wall, which the author has seen come out in its entirety after a few days. 5 In preparation of burned areas for skin grafting. 6 As a continuous wet dressing over fresh pinch grafts.

### Annals of Medical History, New York

8:192 (Jan.) 1936

- Domenico Cotugno. A. Levinson. Chicago.—p. 1  
Albrecht von Haller (1708-1777). O. Klotz. Toronto.—p. 10  
From Hippocrates to Ramazzini. Early History of Industrial Medicine. L. J. Goldwater. New York.—p. 27  
Infant Welfare as Taught in Philadelphia One Hundred Years Ago. N. Macneill. Philadelphia.—p. 36  
Discussion of Burton's Anatomy of Melancholy. J. L. Miller. Chicago.—p. 44  
Pathologic Cabinet of the New York Hospital. C. T. Olcott. New York.—p. 54  
Galen's Writing and Influences Inspiring Them. J. Walsh. Philadelphia.—p. 65

### Archives of Internal Medicine, Chicago

57:241-476 (Feb.) 1936

- Pharmacologic and Therapeutic Properties of Crystalline Vitamin C (Cevitic Acid) with Especial Reference to Its Effects on Capillary Fragility. I. S. Wright and A. Lilienfeld. New York.—p. 241  
\*Adrenal Insufficiency Resulting from Partial or Total Atrophy of Adrenal Glands. Early Clinical Recognition. G. L. Weller Jr. Washington D. C.—p. 275  
\*Relation of Disease of Liver to Anemia. Type of Anemia Response to Treatment and Relation of Type of Anemia to Histopathologic Changes in Liver, Spleen and Bone Marrow. M. M. Wintrobe. Baltimore.—p. 289  
Neuritic Manifestations in Diabetes Mellitus. W. R. Jordan. Richmond Va.—p. 307  
Rest and Activity Levels of Leukocytes in Health and in Disease. E. M. Medlar. Mount McGregor, N. Y.—p. 367  
Serum Calcium, Inorganic Phosphorus and Phosphatase Activity in Hyperparathyroidism. Paget's Disease, Multiple Myeloma and Neoplastic Disease of Bones. A. B. Gutman, T. L. Tyson and Ethel Benedict Gutman. New York.—p. 379  
\*Neuropathy in Diabetes. Lipid Constituents of Nerves Correlated with Clinical Data. W. R. Jordan, Richmond Va. and L. O. Randall. Rochester, N. Y.—p. 414  
Diseases of Metabolism and Nutrition. Review of Certain Recent Contributions. R. M. Wilder and D. L. Wilbur. Rochester, Minn.—p. 422

**Adrenal Insufficiency Resulting from Atrophy of Adrenals**—Weller believes that the cases presented not only stress the varied early manifestations of adrenal insufficiency but provide an adequate basis on which a description of its early symptomatology may be built. The clinical aspects including both

symptomatology and diagnosis of early adrenal insufficiency resulting from partial or total atrophy of the adrenals, are discussed. The features stressed are the existence of a definite but heretofore considered vague group of symptoms, from the time of onset to the termination of the destructive process in the adrenals, the manifestation of exacerbations in the adrenal insufficiency by nausea, vomiting, hypotension, hypoglycemia, drowsiness even to coma and atypical neurologic signs, the occurrence of exacerbations during periods of physical, emotional or endocrine stress, the frequent absence of pigmentation, and the relief of symptoms during the periods of exacerbation, in all but the terminal stages, by the administration of dextrose.

**Relation of Disease of Liver to Anemia**—The observations recorded by Wintrobe indicate that in cases of hepatic disease, except when loss of blood or a complicating infection is present, anemia, when it develops, is either of the normocytic or of the macrocytic type. The macrocytic anemia observed is in many respects like pernicious anemia, although it is rarely as marked as the latter, it is morphologically similar, if not identical. Spontaneous remissions in the anemia may occur. Intramuscular liver therapy was followed in several cases by definite reticulocytosis and a decrease of anemia such as occurs in cases of pernicious anemia. He assumes that the hepatic disease is the cause of the macrocytic anemia. In the cases of macrocytic anemia the hepatic disease was of such long duration and was so widespread through the organ that little functioning liver tissue remained. Macrocytic anemia appears to be especially common in cases of cirrhosis of the liver, and in this disease the illness is characteristically chronic and the lesions widespread. When damage to the liver is so extensive that storage is interfered with and when it has been of sufficient duration to permit exhaustion of the hematopoietic principle already present, macrocytic anemia develops. Experiments tend to support the belief that patients with disease of the liver and macrocytic anemia are able to utilize the extrinsic factor to form the hematopoietic principle. The ability to utilize the extrinsic factor may explain why in cases of hepatic disease with macrocytic anemia the anemia is rarely severe and the consumption of various amounts of active hematopoietic principle may explain the fluctuations in the degree of anemia that have been so frequently observed. The foci of blood formation observed in the spleens of the patients who had hepatic disease with macrocytic anemia are of considerable interest because such foci have rarely been observed in adults except in cases of pernicious anemia, osteosclerosis and carcinomatous replacement of the bone marrow and in rare cases of sepsis. Among the cases (132) of hepatic disease described there were only two in which any of the conditions known to be associated with the development of extramedullary hematopoietic foci were discovered. In each of these cases one small vertebral metastasis was noted. It is possible that other bone metastases were present which were not discovered. The presence of foci of extramedullary hematopoiesis in cases of chronic and widespread hepatic disease with macrocytic anemia is another point of similarity to pernicious anemia, in which, it has been already pointed out, blood formation in the spleen is common. The development of extramedullary blood formation may occur in the two instances as the result of the same fundamental abnormality, namely a deficiency in a necessary hematopoietic principle.

**Neuropathy in Diabetes**—Jordan and Randall made analyses of the various lipid constituents of fifty-two nerves from persons with diabetes and of twenty-three nerves from persons without diabetes. The average phospholipid, cholesterol and cerebroside content of the nerves from diabetic patients was considerably lower than that of the nerves used for controls. The nerves from the lower part of the legs of diabetic patients showed much greater damage than nerves from the pelvic level. This was not true in the one nerve from the lower part of the leg of a control subject as compared with the pelvic nerves from control subjects. The greater the vascular disease in a diabetic patient the greater the damage to the nerves. In two patients without diabetes who had arteriosclerosis this pathologic change was not found indicating that vascular disease is not the sole cause of neuropathy in diabetic patients. Previous inadequate control of the diabetes seems to affect the nerves

adversely to a slight extent. The severity and duration of the diabetes seemed not to affect the nerves, or else the effect was nullified by other factors. The chemical pathologic changes in the nerves of diabetic patients seemed to exceed or to precede the clinical manifestations of neuropathy. More complete studies of this chemical pathologic change to determine the effect of numerous factors are necessary before reliable statements can be made.

### Archives of Pathology, Chicago

21 127 264 (Feb.) 1936

- Ulceration in Digestive Tract of Dog Following Intracranial Procedures Preliminary Study A D Keller University Ala —p 127  
Protection by Peripheral Nerve Section of Gastrointestinal Tract from Ulceration Following Hypothalamic Lesions Preliminary Observations on Ulceration in Gastrointestinal Tract of Dog Following Vagotomy A D Keller University Ala —p 165  
Ulceration in Digestive Tract of Dog Following Hypophysectomy A D Keller and Marie C D'Amour University Ala —p 185  
Alveolar Pores and Their Significance in Human Lung C C Macklin London Ont —p 202

### Bulletin of Neurol Inst of New York, New York

4 403 534 (Dec.) 1935

- Unusual Types of Migraine H A Riley R M Brickner and S E Soltz New York —p 403  
Autonomic Faciocephalgia R M Brickner and H A Riley New York —p 422  
\*Use of Orally Administered Ergotamine Tartrate, Amniotin and Phenobarbital in Treatment of Migraine S E Soltz R M Brickner H A Riley and I A Salmon New York —p 432  
Examination by Routine Laboratory Methods of Group of Patients Suffering from Migraine H A Riley S E Soltz R M Brickner and C C Hare New York —p 442  
Effects of Certain Experimental Lesions of Central Nervous System of Cats as Determined by Some Specific Tests of Motor Performance M N Chappell and I H Pike New York —p 451  
The Sense of Smell VIII Olfactory Fatigue C A Elsberg New York —p 479  
Id. IX (A) Monorhinal, Bihornal and Bisynchronorhinal Smell Summation of Impulses in Bihornal Smell (B) Some Facts Regarding Psychophysiology of Olfactory Sense C A Elsberg New York —p 496  
Id. X Detailed Description of Technique of Two Olfactory Tests Used for Localization of Supratentorial Tumors of the Brain C A Elsberg and E D Brewer New York —p 501  
Id. XI Value of Quantitative Olfactory Tests for Localization of Supratentorial Tumors of the Brain Preliminary Report C A Elsberg New York —p 511  
\*Treatment of Myasthenia Gravis by Oral Administration of Prostigmine W H Everts New York —p 523  
Bitemporal Hemianopia in Unilateral Cerebral Tumors Report of Two Cases R T Collins New York —p 531

**Ergotamine Tartrate, Amniotin and Phenobarbital in Treatment of Migraine.**—Soltz and his associates give the results of the treatment of a group of migrainous patients with oral ergotamine tartrate, oral amniotin (Squibb) and phenobarbital. Certain types of patients respond to certain forms of therapy. On the other hand, it has not been shown that any of these types are resistant to other forms of treatment. Oral ergotamine tartrate is effective in male adults with either simple or ophthalmic migraine and in children of either sex, all but one of the children in the series presented the ophthalmic type of migraine. It is effective in women who suffer from the simple type of migraine, no definite statement can be made as to its value in ophthalmic migraine occurring in women. It is useful in women who are in the menopause. Negro women respond well to oral ergotamine tartrate therapy. Oral amniotin is frequently useful in women who suffer from either the simple or the ophthalmic type of migraine. The existence of the menopause, whether natural or artificial, appears to be immaterial in the response to treatment with oral amniotin. No men or children were treated with oral amniotin. With both forms of treatment women who have never been pregnant respond better than other women. Women whose migraine did not start until after the last pregnancy respond well to amniotin. Only two such patients were treated with ergotamine tartrate. Phenobarbital has been helpful in a small group of patients. Among these the ophthalmic type of attack predominates. No facts connected with abnormalities of menstruation or of the sella turcica appear to have any relation to success or failure with any of the modes of treatment. The age at the time of treatment or at the onset of the condition, and the duration of the migraine also appear to be without such relation.

**Physostigmine Derivative in Treatment of Myasthenia Gravis.**—Everts reports two cases of myasthenia gravis that were relieved of symptoms and restored to health by the oral administration of a physostigmine derivative (prostigmine) continued for a period of months. The oral administration is effective and has distinct advantages over the hypodermic use of the drug. The best results were obtained by doses of 30 mg given three times a day. The oral administration of the drug is safe, does not produce gastric or intestinal disturbances, can be continued for indefinite periods and is a satisfactory method of therapy in myasthenia gravis.

### Canadian Public Health Journal, Toronto

27 1 52 (Jan.) 1936

- The Health Program of the Tennessee Valley Authority E L Bishop Knoxville Tenn —p 1  
Some Problems of Poliomyelitis J Craigie Toronto —p 6  
Public Health Education and National Health G Bates Toronto —p 13  
Vaccination Against Tuberculosis with the BCG Vaccine J A Baudouin Montreal —p 20  
Scope for Improvement in Canadian Stillbirth Statistics E S Macphail Ottawa Ont —p 27  
\*Diarrhea and Typhoid Infections Elizabeth Chant Robertson Toronto —p 37

**Diarrhea and Typhoid Infections.**—Robertson cites the following: 1 Of a group of nine boys who drank unboiled river water, eight developed gastro-intestinal disturbances within forty-eight hours, the ninth did not show any early reaction but developed paratyphoid seven days later. 2 Of a family of seven who were exposed to a case of typhoid, four showed early gastro-intestinal disturbances, one showed no ill effects but had had typhoid previously, and one had no early upset but developed typhoid ten days later. The seventh member of the family, an infant, showed no symptoms. 3 Of a large group of children, an unknown number of whom were exposed to infection with *Bacillus typhosus*, about 30 per cent developed gastro-intestinal disturbances within forty-eight hours after exposure. Eleven of the children developed typhoid and only one or possibly two of these showed any early reaction after exposure. It is possible that the immediate gastro-intestinal reaction prevents the typhoid bacilli from invading and setting up a severe infection.

### Indiana State Medical Assn Journal, Indianapolis

20 57 108 (Feb. 1) 1936

- Some Changing Concepts Regarding Endometrium and Their Significance V S Counsellor and W E Herrell Rochester Minn —p 57  
Encephalitis L D Carter Indianapolis —p 63  
Cataract Formation Occurring Following Use of Dimetrophenol H E Hill Muncie —p 67  
Osteotomy and Arthroplasty for Bony Ankylosis of Left Temporomandibular Joint of Twenty Years Duration T A Loop Lafayette —p 70  
Present Status of Prostatic Resection W W Hewins Evansville —p 73

### Iowa State Medical Society Journal, Des Moines

26 65 122 (Feb.) 1936

- Diseases of Lymph Nodes W S Middleton Madison Wis —p 65  
The Heart in Relation to Surgery and Anesthetics H W Rathe Waverly —p 75  
The Heart and Deficiency Diseases E E Kottke Des Moines —p 79  
\*Diagnosis of Carcinoma of Pancreas C A Sones Des Moines —p 87  
Gastrojejunal Ulcer W H Gibbon Sioux City —p 84  
Injuries to the Spine A F O'Donoghue Sioux City —p 86  
Injuries to the Hand V A Ruth Des Moines —p 90  
Diagnosis of the More Common Forms of Paralysis F J Rohrer Iowa City —p 92  
New Therapeutic Agents and Their Practical Value in Otolaryngology J A Thorson Dubuque —p 95

**Diagnosis of Carcinoma of Pancreas.**—Sones points out that there is no clinical syndrome singularly characteristic of carcinoma of the pancreas. There are no physical, laboratory or roentgen signs which in themselves are final in the diagnosis. In a case of cachexia with loss of weight and strength, deep progressive jaundice, hard boring epigastric pain radiating to the back and affected by posture, palpable epigastric tumor which is fairly well fixed and tender, palpable gallbladder, abnormal blood sugar level and positive roentgen observations, one has all the cardinal symptoms and signs present for a reasonably accurate clinical diagnosis of carcinoma of the pancreas but the actual computation by percentages would

reveal the fact that all these features are present in the same case in only one out of at least 200 cases. In the great majority of cases many of these are lacking or indefinite, so that a satisfactory diagnosis is difficult or impossible, but it seems fair to say that with cachexia, weight and strength loss as one, in addition to any two of the remaining features, one has sufficient evidence for a presumptive diagnosis.

### Journal of Lab and Clinical Medicine, St. Louis

21 445 550 (Feb.) 1936

- Accelerating Factors in Chronic Hypertrophic Arthritis (Osteo Arthritis) R L Haden and W A Warren Cleveland—p 448
- Bacteriologic and Immunologic Studies in Arthritis I Results of Blood Cultures in Different Forms of Arthritis C McEwen R C Alexander and J J Bunim New York—p 453
- Id II Results of Various Immunologic Tests in Different Forms of Arthritis C McEwen J J Bunim and R C Alexander New York—p 465
- \*Protein Studies in Atrophic (Rheumatoid) and Hypertrophic Arthritis J S Davis Jr New York—p 478
- Home Treatment of Chronic Arthritis by Physical Therapy J S Coulter Chicago—p 497
- \*Chronic Atrophic Arthritis Effect of High Carbohydrate Diet and Insulin on Symptoms and Respiratory Metabolism B D Bowen and L M Lockie Buffalo—p 505
- Present Status of Fever Therapy in Treatment of Gonorrheal Arthritis Chronic Infectious (Atrophic) Arthritis and Other Forms of Rheumatism P S Hench Rochester Minn—p 524
- What Can Be Expected from Orthopedic Care of Arthritis? L T Swann Boston—p 532
- \*Treatment of Atrophic (Rheumatoid) Arthritis with Leukocyte Concentrate E F Hartung New York—p 536
- Use of Cinchophen in Treatment of Chronic Arthritis R G Snyder C H Traeger C A Zoll L C Kelly and F J Lust New York—p 541

### Protein Studies in Atrophic and Hypertrophic Arthritis

—Davis determined the total plasma protein albumin, globulin, fibrinogen, globulin fractions pseudo I and II and euglobulin and sedimentation rate on ninety subjects. His paper deals only with changes occurring at various stages of arthritis. The globulin fraction tends to rise in atrophic (rheumatoid) arthritis. The greatest change takes place in the euglobulin fraction. Albumin tends to fall in atrophic arthritis. There is little if any change in the protein fraction of those ill with hypertrophic arthritis. Evidence is presented to show that atrophic arthritis is an infectious disease while hypertrophic arthritis is not. Theoretically a diminished sedimentation rate is not always an accurate index of improvement as accomplished by vaccine, for a rise in globulin has been produced by certain vaccines and this alone might increase the sedimentation rate. This has not been the author's experience in using hemolytic streptococcus vaccine. The fibrinogen content usually rises in atrophic arthritis but not in proportion to the globulin rise. Restriction of protein in the diet of the atrophic arthritic patient might at times be dangerous. Vitamin deficiency and malnutrition may play a part in the protein changes in atrophic arthritis.

**Chronic Atrophic Arthritis and Effect of Diet and Insulin on Symptoms and Respiratory Metabolism** —Bowen and Lockie observed eight women, from 18 to 65 years of age, with advanced atrophic arthritis for a period of from fifteen to sixty five weeks during which time they were fed a high carbohydrate diet. The patients had lost from 25 to 50 pounds (11.4 to 22.7 Kg). Seven of the patients received insulin for the purpose of observing its action on increasing appetite and the influence of the reduction of blood sugar on the arthritis. All patients were observed for varying periods on the diet alone before insulin was administered. Carbohydrate was given to them in many forms. After this preliminary study further nutrition was attempted by the use of insulin up to the point of the patient's tolerance. The weight curve was not conspicuously higher during the period of insulin administration, nor was the amount of food ingested greatly increased. Following the sudden withdrawal of insulin saline solution subcutaneously was substituted. The first three patients who had been under observation for the longest periods, made the greatest weight gains 42.50 and 24 pounds (19, 22.7 and 11 Kg). They also made the greatest clinical improvement. Two patients even though they did ingest adequate calories, failed to gain both had the maximal devastation of the disease. One patient, who had gained a lesser amount also improved remarkably. Clinical improvement that was

observed in these patients cannot be ascribed to a single measure, because several factors were obviously operating—rest, freedom from worry and exposure, and a large amount of vitamin C. As far as possible, other adjuncts were employed in a minimal degree. The high carbohydrate diet did not produce any exacerbation of the arthritic process. The respiratory metabolism was studied in seven of the cases. Only one patient had a temporary slight lowering of the rate, which was possibly due to an antecedent respiratory infection. The rates were found to be steady throughout the period of observation and were uninfluenced by increasing body weight. The trend of the postabsorptive respiratory quotients, even though they showed in some cases rather wide variations, was approximately level throughout. The quotients during the periods of insulin administration were not altered. The average quotient was found to be slightly higher than that of persons who eat the ordinary mixed American diet. It then seems that the seven patients were able to use carbohydrate normally. The authors do not believe that a high carbohydrate diet has any special efficacy in the treatment of chronic atrophic arthritis, but they do stress the importance of overnutrition in the management of such patients when they are undernourished.

**Treatment of Atrophic Arthritis with Leukocyte Concentrate** —Hartung used leukocyte concentrate in atrophic (rheumatoid) arthritis because of the nucleic acid content of these cells and because he thought that normal leukocytes might contain a hormone lacking in patients with atrophic arthritis. Ten patients with atrophic arthritis were selected by the usual criteria. Their condition ranged in severity from markedly generalized, crippling deformity in a child 10 years of age to mild but definite arthritis in elderly subjects. No case can be considered cured. Six patients show decided symptomatic and general constitutional improvement. In the remaining four patients, improvement was only slight or questionable. Improvement consisted of a decrease in pain, an increase in joint motion and a feeling of increased strength and well being. These changes were not, however, accompanied by improvement in the blood picture or in the sedimentation rate. It is clear to the author that intraglutal injections of leukocyte concentrate have a definite beneficial effect in some cases of atrophic arthritis. The effect is apparently in no way specific. In view of the lack of change in the sedimentation rate it appears that its effect is constitutional and only indirectly affects the arthritis. Its mode of action is obscure. The amount of nucleic acid present in the injected leukocytes is not sufficient to affect the blood picture. The beneficial effect may be purely a nonspecific protein reaction, but the effect was obtained more quickly, was more lasting and in every way far superior to that obtained by any foreign protein used previously by him.

### Journal of Pharmacology & Exper Therap, Baltimore

56 1116 (Jan.) 1936

- Relation Between Action and Concentration of Ether and Camphor Applied to Heart Muscle M A F Sherif Cairo Egypt—p 1
- Effect of Posterior Pituitary Preparations on Colloid Osmotic Pressure of Serum Protein Water and Mineral Metabolism of Dogs K Yanagi Rochester N Y—p 23
- Respiratory Effects of Morphine Codeine and Related Substances I Effect of  $\alpha$   $\beta$   $\gamma$  Dihydro  $\alpha$  Dihydro  $\beta$  and Dihydro  $\gamma$  isomorphine on Respiration of Rabbit C I Wright and F A Barbour Ann Arbor Mich—p 39
- Antihelmintic Studies on Alkylhydroxy Benzenes VI Alkyl Polycyclic phenols P D Lamson R W Stoughton and A D Bass Nashville Tenn—p 50
- Toxicity and Rate of Disappearance of Intracavernally Injected Calcium Salts in Dog M F Mason and H Reink Nashville Tenn—p 53
- Antihelmintic Studies on Alkylhydroxy Benzenes VII Hydrogenated Phenols P D Lamson R W Stoughton and A D Bass Nashville Tenn—p 60
- Id VIII A Phenolic Ketones B Phenolic Ethers and Esters C Organic Acids P D Lamson R W Stoughton and A D Bass Nashville Tenn—p 63
- Observations on Effects of Dihydromorphine Hydrochloride (Dilaudid) on Intact Uterus of Animals Anesthetized by Cerebral Anemia J B Mitchell Jr and D S Pankratz Memphis Tenn—p 69
- Antagonism Between Cardiac Action of Acetyl  $\beta$  Methylcholine and Acetylcholine and That of Quinidine Note I Starr Jr Philadelphia—p 77
- Use of Bulboapamine in Preanesthetic Medication H Molitor Rahway N J—p 82
- Some Observations on Effect of Drugs on Ear Vessels of Unanesthetized Rabbit as Seen in Perfused Tissue Chamber Helene C Wilson Philadelphia—p 97

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Ophthalmology, London

20 164 (Jan.) 1936

- Electrical Response of the Eye to Light J. Parson —p. 1  
Varicella of the Cornea R. Pickard —p. 15  
Chlorosis with Ocular Complications Case J. B. Hamilton —p. 18  
Fremulous Lens A. W. D. Ombraun —p. 22  
Tuberculosis of Choroid Associated with Generalized Miliary Tuberculosis F. Tooke —p. 23  
Glutathione in Blood in Senile Cataract and Other Ocular Conditions Dorothy Adams Campbell —p. 33  
Localization of Retinal Hole J. A. Van Heuven —p. 39

## British Journal of Urology, London

7 313 438 (Dec.) 1935

- Significance of Vesical Diverticula R. H. O. B. Robinson —p. 313  
Transurethral Resection of Malignant Prostate Review of Fifteen Cases A. Jacobs —p. 321  
Ruptured Abdominal Aortic Aneurysm Simulating Perinephric Abscess Report of Case C. Ruhe and S. K. Bacon —p. 330  
Treatment of Bilharzia Infection by the Urologist F. G. Cawston —p. 333  
Uremic Ulcerative Colitis Following Cystoscopy A. I. d'Abreu and A. C. Livaght —p. 336

## Journal of Laryngology and Otology, London

51 176 (Jan.) 1936

- \*Defenses of the Air Passages (Semon Lecture 1935) S. C. Thomson —p. 1  
Laryngeal Disease of the Emperor Frederick J. Colledge —p. 31

**Defenses of Air Passages**—Thomson limits his review of the defenses of the airways to the local means of protection in normal conditions of health. These are reinforced by such prophylactic weapons—particularly in disease—as antitoxins and other antibodies, opsonins and phagocytosis, bacteriolysis, leukins and other germicidal substances, and the army of reserve defenses that maintain the normal state of immunity. These local defenses are so effective in health that it is difficult to produce pulmonary infections by inhalation or insufflation of organisms under normal conditions. He discusses the complexity and perfection of these defenses and hopes to encourage interest in normal processes as a necessary first step to the study of disease. Biology is opening up possibilities of discoveries that will enlarge the conquests of Pasteur, Koch and Lister. This may lead to knowledge that will avert or cure many of the common human ailments. These studies should help to explain why the removal of a focus of infection or why operations, however radical and brilliant, sometimes fail to cure.

## Lancet, London

1 166 (Jan. 4) 1936

- \*Therapeutic Action of Iron L. J. Wills —p. 1  
\*Gastric Acidity and Its Significance Clinical and Experimental Study F. L. Apperly —p. 5  
Inhibitory Effect of Follicular Hormone on Anterior Lobe of Pituitary Gland B. Zondek —p. 10  
Intravenous Curarine in Treatment of Tetanus R. West —p. 12  
Mercurial (Novurit) Suppository as Diuretic for Cardiac Edema J. Parkinson and W. A. R. Thomson —p. 16  
Hypervitaminosis D L. Thatcher —p. 20  
Bacillus Aertrycke Food Poisoning Due to Contamination of Food with Excreta of Mice E. R. Jones and H. D. Wright —p. 22

**Therapeutic Action of Iron**—According to Wills, iron is absorbed chiefly in the duodenum, but the stomach and the whole of the small intestine may take part. The upper part of the alimentary tract is an all-important area in hemato-poiesis, the surgeon should avoid too ruthless an exploitation of this territory. In health the absorption of iron by the stomach and small intestine may be expected to be equalized by the loss through the colon. The administration of iron to normal men does not affect the blood count, but much of the iron may be retained in the body. There is a minimal effective dose of iron. In addition to the physiologic states that increase the requirement of iron, there are pathologic conditions that impair its absorption and give rise to a conditioned deficiency. "The most important is achlorhydria. The therapeutic action of iron can be enhanced by certain procedures that facilitate the absorption of iron. Bethell and his co-workers showed that a dosage of 300 mg. a day of reduced iron was ineffective when given in three divided doses of 100 mg. but

was effective when given in ten divided doses of 30 mg., this seems to be a pure absorption phenomenon. In experimental animals iron can be absorbed and stored in the liver but cannot be converted into hemoglobin unless copper also is present, this is apparently a pure utilization phenomenon. It is difficult to demonstrate the action of copper in man, in whom deficiency of copper is excessively rare. The "average effective dose" of a preparation of iron may be defined as the dose that produces an average increase of more than 1 per cent of hemoglobin a day in a sufficiently large sample of patients with achlorhydria and anemia, when the initial hemoglobin level does not exceed 50 per cent and when the period of observation is not less than twenty-five and not more than forty days. Iron is most active when given by injection, but in practice parenteral administration is contraindicated by its dangers. The therapeutic dose of iron by injection (iron and ammonium citrate equivalent to 32 mg.) is so close to the toxic dose (from 48 to 80 mg.) that effective treatment can hardly be given by this route. The therapeutic activity of preparations of iron by mouth is proportional to their solubility and to the ease with which they yield free ions of ferrous iron. The soluble ferrous salts are the most active. The utilization of an average effective dose of ferrous iron is approximately 20 per cent, and, if minimal effective doses of ferrous iron are prescribed, between 50 and 100 per cent of the dose ingested may be utilized for hemoglobin formation. Reticulocyte crises and repair of anemia may be observed with a daily dosage as low as 22 mg. of ferrous iron by mouth. To a large extent, iron is used to repair deficiencies that would not have occurred had the diet been satisfactory.

**Gastric Acidity and Its Significance**—Apperly suggests that hyperchlorhydria and the symptoms associated with it might be diminished by removal to a warm climate, artificial fever, heat treatment, bleeding and the substitution of oxides and nonabsorbable bicarbonates for the usual sodium bicarbonate treatment, since the latter salt in large amount, by increasing plasma carbon dioxide, may actually raise gastric acidity. Certain of the hypo acid dyspepsias are more likely to be influenced by attention to the underlying anoxemia or acidosis than by direct local treatment. A search for the causes of a low plasma carbon dioxide may be fruitful, since it may give a clue to the underlying pathologic conditions. In dealing with cases in which achlorhydria or hypochlorhydria is associated with anemia, it might be well to investigate which of these conditions is primary—i. e., whether one is dealing with an anemic achlorhydria or an achlorhydric anemia (Witts). Gastric acidity after a meal is chiefly a function of the blood carbon dioxide. In normal persons this is regulated by the hemoglobin content of the blood, by the ratio of the pulmonary vital capacity to body weight (or surface) and by temperature. Under abnormal conditions anoxemia, anemia, altitudes, pregnancy, nephritis, fevers, diabetes, severe exercise and lowered physical fitness may diminish plasma carbon dioxide and therefore gastric acidity. Asthma and emphysema, which raise plasma carbon dioxide, would be expected to raise gastric acidity, while encephalitis, irradiation and certain cardiac conditions, which lower plasma carbon dioxide, would be expected to lower gastric acidity, but these effects have not been investigated. The acidity of the gastric juice is a rough measure of the alkali reserve of the blood (except in marked anemia), while the rate of gastric evacuation would seem to be influenced partly, at least, by blood  $pH$ . A consideration of the possible causes of such variations of plasma carbon dioxide and  $pH$  may give valuable hints as to the pathologic conditions underlying certain dyspepsias. There is a direct relationship between the red cell content of the blood and gastric acidity. When the former falls to about half or two thirds normal (on the average), free acid disappears from the stomach. A distinction is therefore made between the achlorhydric anemia of Witts and anemic achlorhydria.

## Medical Journal of Australia, Sydney

1 140 (Jan. 4) 1936

- Doctors and Specialists and the Common Weal M. G. Sulton —p. 1  
Relationship of Vitamins to Normal Health M. L. Mitchell —p. 7  
Reactions of Three Hundred and Fifty Children to Diphtheria Antitoxin A. A. Merritt —p. 14

# Practitioner, London

136 1 120 (Jan) 1936

- Treatment of Lobar Pneumonia A J Hall—p 1
- Influenza A J S Pinchin and H V Morlock—p 11
- The Common Cold Its Prevention and Cure E P Foulton in collaboration with F A Knott—p 24
- The Management of Otitis Media and Sinusitis Complicating the Common Cold L Colledge—p 33
- Acute Sore Throat E Watson Williams—p 37
- Chronic Cough in Children W G Wyllie—p 52
- Effects of Winter on Chronic Rheumatic Conditions J B Burt—p 62
- Winter Dermatoses H Haldin Davis—p 70
- What Is Disease? I P Weber—p 76
- Treatment of Stammering C MacMahon—p 84
- Hemolytic Streptococcal Fever F Ind—p 91
- The Misuse of Some Common Remedies C Howle and J W Innell—p 94
- Favorite Prescriptions VIII The Pharmacopoeia of Guy's Hospital N Mutch—p 103

# Quart Bull, Health Org, League of Nations, Geneva

3 325 530 (Sept) 1934

- Therapeutic Efficacy of Totiquina in Human Malaria I Clinical Test, Carried Out Under Auspices of Malaria Commission E J Pim—p 328
- Id II Critical Analysis of Results Achieved W Fletcher—p 344
- Stockholm Garden Settlements C Lindhagen—p 359
- Investigations on Heavy Muscular Work E H Christensen A Krogh and I Lindhard—p 388
- \*International Study of Statistical Results of Radiologic Treatment of Cancer of Uterus Report of Conference of Experts Held at Zurich July 21 23 1934—p 418
- Second Conference on Vitamin Standardization Held in London from June 12 to 14 1934—p 428
- Observations on Invasion of Wieringermeerpolder by Anopheles Maculipennis A H Swellengrebel and J A Nykamp—p 441
- Effects of Economic Depression on Population of Vienna A Gotzl W Kornfeld and E Nobel—p 461

**Radiologic Treatment of Cancer of Uterus**—The recommendations of the conference are that 1 The Health Organisation should for the present limit its collection of statistical data to cancer of the cervix uteri 2 The Health Organisation should aim at producing annual statistical statements regarding results of five years (and possibly results for later years) of radiotherapy of cancer of the cervix An agreed table for this purpose which may be termed the survival table is annexed with relevant notes 3 The annual statistical statement would comprise statements supplied by the national correspondents or those countries in which information from the most important institutes can be effectively collected and submitted by a single correspondent and when not possible or in special circumstances by an institutional correspondent 4 The Health Organisation should take the further steps necessary to arrange for the effective collaboration of national and institutional correspondents on this basis To aid it in the preparation of its annual statistical statement and for other purposes, the Organisation should obtain the aid of a small body of experts 5 The primary object of the proposed annual statistical statement is to provide a convenient work of reference for those who need to know what can be said statistically with regard to the results obtained by the application of radiotherapy to patients suffering from cancer of the cervix uteri when the agreed rules for the setting up of statistics have been observed and full account is taken of the following up of treated cases and the records of their after-histories 6 The material now available or being obtained would permit the preparation of the first annual statement at an early date its appearance in 1936 seems practicable and desirable The material for the first annual statement would consist in part of data from institutions which have complied with the request made to them by the Health Section of the League as a result of the report of the Radiological Sub-Commission in 1929 7 The discussions at the conference have shown that even under the simple system proposed doubts will arise about the tabulation of particular cases or as to the interpretation of the rules suggested for the keeping of the survival tables They have also shown that provision must be made for considering the application of the statistical statements to new knowledge obtained in the future So far however as such questions require expert opinion they can be dealt with as they arise with the aid of the expert advisory body that has been proposed

# Journal de Chirurgie, Paris

47 1 176 (Jan) 1936

- Action of Stomach After Gastrectomy J Seneque and C Marc—p 1
- \*Immediate and Late Results of Chordotomy I S Babitchne—p 26
- Anatomoclinical Study of Thyroid Cancers J J Herbert—p 40

**Results of Chordotomy**—Babitchne discusses some of the previous work on chordotomy of the anterolateral tract for intractable pain and presents his results in thirty-four cases in which forty-seven chordotomies were performed for this reason In sixteen (nineteen chordotomies) the reason was malignant tumors In twelve (twenty chordotomies) the operation was performed for meningoradiculitis or neuritis, in five (six chordotomies) for pain following amputation and in one (two chordotomies) for tabetic pains The early and late results are discussed in detail He concludes that chordotomy is so valuable in the treatment of these pains that it cannot be replaced by any other operative procedure The most favorable results are obtained in malignant tumors and the least favorable in the pains following amputation In order to stop the pains with the maximum of certainty, he recommends bilateral chordotomy This should be done more often not only in the presence of malignant tumors but in other types of painful conditions as well Many of these will yield to the bilateral operation although still present after the unilateral one

# Presse Medicale, Paris

44 1 24 (Jan 1) 1936

- Treatment of Cancer of Bladder R Gouverneur and R Dossot—p 1
- Humoral Pathology of Malaria A Radosavlevic—p 4
- \*Epituberculosis and Its Manifestations in Adults R Benda and H Mollard—p 6
- Variability of Erythrocyte Sedimentation A Kaminli—p 8

**Epituberculosis in Adults**—Benda and Mollard define peritocal infiltration as an inflammatory reaction around a focus and epituberculosis as an inflammation so large around a focus so tiny that the relations between cause and effect are apparently reversed Stated in another way the latter reaction has an importance apart from the focus around which it developed There is thus no essential reason why epituberculosis should not develop in adults as well as in young people In corroboration of this view they recently observed two adult patients in whom the roentgen and physical examination demonstrated this type of reaction These patients did not show any other tuberculous focus Furthermore they state that in tuberculous patients who are regularly followed it is not unusual to see sudden pulmonary condensations, which quickly disappear and involve another region of the lung Finally, epituberculosis in adults is sometimes seen following therapeutic procedures The authors conclude that their conception of epituberculosis is more general and more elastic than that of most and comprises all the perifocal reactions which reveal a focus while temporarily concealing it It appears incorrect to them to limit epituberculosis to a certain age a slow evolution or a silent roentgenologic period

# Archivio Italiano di Chirurgia, Bologna

41 773 884 (Dec) 1935

- Reteroigmoid Anastomosis Experiments with Higgins Technic I Caporale and C Psicharopoulos—p 775
- Essential Arterial Hypertension Treated by Resection of Left Splanchnic Nerve Ca C Cicciari—p 816
- \*Alteration of Glycogenic Functions of Liver in Associated Syndromes of Right Side of Abdomen A Lauro—p 825
- Suppurative Apophysis Caes F Feinatti—p 844
- Diagnosis of Crural Hernia P Livraga—p 869

**Glycogenic Functions of Liver**—Lauro gives the name of associated syndrome of the right side of the abdomen to a complicated pathologic process of diffuse alterations of several abdominal organs of the right half of the abdomen He made determinations of the glycolytic functions of the liver by means of the test of provoked hyperglycemia after the administration of levulose or dextrose in three groups of patients suffering from different types of syndrome of the right side of the abdomen (simple or in association with duodenal ulcers or cholecystitis) The author reaches the following conclusions: There is a disturbance of the metabolism of the carbohydrates



in all patients with a syndrome of the right side of the abdomen. The metabolic disturbance is more intense in the complicated type (duodenal ulcer or cholecystitis) than in the noncomplicated type of the syndrome. Levulose used in producing hyperglycemia gives more precise results on the glycolytic functions of the liver than dextrose given for the same purpose (83 and 38 per cent, respectively). The insufficiency of the glycolytic functions of the liver does not indicate by itself complete liver insufficiency, but added to the insufficiency of other liver functions under the same condition reported in the literature and to the anatomic alterations seen in the liver of those patients by Leotta and Rindone, it shows that the liver is more or less involved in the pathologic process. The author points out the advisability of performing determinations of the liver functions in all patients with a syndrome of the right side of the abdomen previous to the performance of any abdominal operation, with the aim of preventing a postoperative complication from liver insufficiency that existed before the operation but was not diagnosed.

### Dermatologische Wochenschrift, Leipzig

102 125 164 (Feb. 1) 1936

- Etiology of Chronic Migrating Erythema H. Askanazy—p. 125  
Leukopathia Reticularis with Atypical Angiomatosis Icteric Reticularis Perstans and Bronze Diabetes W. Milbradt—p. 131  
Suction Treatment of Acne Vulgaris A. Skutta—p. 137

**Suction Treatment of Acne Vulgaris**—Skutta thinks that although general factors play a part in the development of acne vulgaris the cutaneous manifestations are nevertheless greatly influenced by local conditions. He shows that the obstruction of the sebaceous glands (comedo) that is the retention of the cutaneous sebum is the cause of the local symptoms. In view of the mechanical nature of this process, a mechanical therapy seems indicated which formerly was effected chiefly by means of expression. However, since expression was not quite satisfactory, the author devised a suction method. He shows that since the vacuum in addition to its mechanical also exerts a biologic action on the tissues the treatment by means of a vacuum is really more than just a mechanical treatment. Besides counteracting the retention of sebum it also has a favorable effect on inflammatory manifestations. After showing how the retention of sebum causes the cutaneous symptoms of acne the author describes the various forms of suction cups that he attaches to the apparatus. He uses different types of cups for the cystic retention of sebum for the removal of comedones and for the treatment of the inflammatory manifestations. The suction apparatus can be operated with the water vacuum pump or with an electric pump. In addition to the local suction treatment the author also employs general causal measures (dietetic, endocrine and so on). Three years of experience with the combined suction and general treatment convinced him that it produces good results and especially reduces the cosmetic defects that are connected with acne.

### Deutsche medizinische Wochenschrift, Leipzig

62 209 248 (Feb. 7) 1936 Partial Index

- Hyperergy F. Kluge—p. 209  
Roentgen Reaction Elicited by Barbituric Acid Derivative E. Uhlmann—p. 216  
Experimental Investigations on Efficacy of Diphtheria Serums R. Prigge and I. Kisch—p. 217  
Present Status of Experiences with Meinicke Clarification Reaction II in Cerebrospinal Fluid K. H. Dombrowsky—p. 219

**Roentgen Reaction Elicited by Medicament**—Uhlmann describes the history of a woman aged 45 who received roentgen irradiations on account of uterine carcinoma. The roentgen rays were applied to one abdominal field and two dorsal fields. No cutaneous disturbances developed in the course of the irradiations but ten days after the last ray treatment the irradiated regions showed an intense erythema and the entire body became covered with a scarlatiniform exanthem which was especially severe on the sides of the trunk and on the thighs. The eyelids were swollen and the lower parts of the legs were edematous. At times the skin was extremely itchy. The patient felt poorly. On the basis of the clinical manifestations a medicinal toxicoderma was thought of. At first the patient stated that she had not taken anything but finally

admitted that she had taken sleeping powders (barbituric acid derivatives). It could not be definitely determined how large the doses had been, but there were indications that she had taken more than eight tablets daily. The further course of the disorder definitely confirmed the diagnosis of medicinal toxicoderma, for after the patient discontinued taking the tablets the cutaneous manifestations disappeared. The author points out that not only the patient and her relatives but also a physician had considered the disorder a generalized roentgen exanthem. To be sure, the author concedes the possibility of the development of a generalized exanthem following irradiation with roentgen rays, but he doubts that the roentgen rays are the only cause of such exanthems, pointing out that in all the cases which came under his observation either an accidental concurrence of septic exanthems with the irradiation or a suddenly developing erythroderma in psoriasis could be demonstrated, so that the roentgen irradiations at most could be suspected of being an eliciting factor. In thousands of cases the author never found a true generalized roentgen exanthem and he says that other authors and large institutes report the same.

### Klinische Wochenschrift, Berlin

15 145 184 (Feb. 1) 1936 Partial Index

- Influence of Vitamin C on Pathologically Changed White Blood Picture H. Lufinger and G. Gaetgens—p. 150  
Cause of Inhibition of Isohemagglutination in Fresh Undiluted Serum F. Andersen—p. 152  
Investigations on Alimentary Hyperglycemia in Cerebral Concussion and in Other Disturbances of the Brain A. Schweers—p. 155  
Studies on Origin and Clinical Significance of Basophil Stippling of Erythrocytes H. Rosegger—p. 158  
Use of Color and Luminescence Comparator of Rojahn Hemici in Physiologic Chemical Studies R. Seifert—p. 162  
Abnormal Diastase Values and Blood Sugar Content G. Jorns—p. 167

**Influence of Vitamin C on Blood Picture**—Lufinger and Gaetgens after pointing out that vitamin C has been found helpful in various forms of capillary hemorrhages and in gynecologic bleedings, call attention to an observation indicating that vitamin C also exerts a favorable influence on the white blood picture. They describe the clinical history of a woman, aged 35 who had a myeloid leukemia. By means of the intra-venous injection of large doses of ascorbic acid (100 mg twice daily for ten days) it proved possible nearly to normalize the white blood picture in a comparatively short time and also to exert a favorable influence on the red blood picture. The woman recovered and was able to work again. Various factors seem to indicate that an action on the bone marrow is chiefly responsible for the efficacy of this treatment.

**Basophil Stippling of Erythrocytes**—Rosegger points out that basophil stippling of the erythrocytes was first observed by Askanazy in the blood of anemic patients but that after Sabrazes called attention to its significance in the diagnosis of lead poisoning it was regarded by many as proof of an existing lead poisoning. The author considers this opinion erroneous and points out that a small number of erythrocytes with basophil stippling appear even in the blood of healthy persons. Discussing the origin of basophil stippling, he shows that the staining of every cellular element is dependent on its electrical charge, which is different in the nucleus, the nucleoli, the protoplasm and so on. If the hydrogen ion concentration of the cell surroundings is altered the electrical charges are likewise changed. A portion of the cell that formerly had an acid reaction may now become basic and vice versa. The author found that the point at which acidity changes into alkalinity, that is the iso-electric point, is in the majority of cases the same for the basophil stippling, for polychromasia and for the reticulofilamentous formation. He concludes that this favors the common origin of these phenomena. He says that the diagnostic value of the basophil stippling is slight, because it is detected in a large number of pathologic conditions. It is comparatively frequent in the diseases of the blood, particularly pernicious anemia in which it is found at the beginning of the stage of remission. It occurs also in certain occupational diseases and in renal disorders. The presence of basophil stippling indicates increased irritability of the bone marrow.

**Abnormal Diastase Values and Blood Sugar Content**—Jorns points out that surgical treatment of diabetes mellitus by means of ligation of the pancreatic duct has proved unsuccessful. Ligation of the excretory duct of the parotid gland, which had been suggested by other investigators produced only a temporary effect. The latter intervention had been suggested because it was assumed that the parotid produced an insulin-like substance which following ligation of the duct and stasis of the secretion, would become absorbed in larger quantities. However, this explanation was refuted. Later it was assumed that the reduction in the blood sugar values which became manifest after the ligation of the duct of Steno was a result of an increased resorption of the salivary diastase. Some investigators corroborated this assumption by experiments but more critical studies disclosed that the behavior of the blood sugar is entirely independent of the concentration of diastase in the blood. The author studied the diastase and blood sugar values in cases of parotitis and found them normal in the majority of cases. He ligated the excretory duct of the parotid gland in rabbits and during the first six or eight days after this intervention he studied the blood sugar and the diastase values. He found that the diastase values increased shortly after ligation, but that this soon subsided and the blood sugar values showed no changes. He reaches the conclusion that as yet there is no proof for an interdependence of the blood sugar and the diastase contents.

15 185 216 (Feb 8) 1936 Partial Index

Familial Leukemia H Cuschmann—p 185

\*Influence of Nicotine on Iodine and Cholesterol Content of Blood L H Strauss and P Scheer—p 187

\*Bactericidal Power and Antitoxic Action of Vitamin C J von Gagy—p 190

Significance of Serologic Examination of Tuberculosis F E Haag and E L Schiedges—p 195

Influence of Insulin on Motor Chronaxia of Rabbits H Reimers—p 199

**Influence of Nicotine on Iodine and Cholesterol Content of Blood**—Strauss and Scheer direct attention to the fact that not only smokers are exposed to the injurious effects of nicotine but also workers in tobacco factories and persons who work with parasitocides that contain nicotine solutions. In animal experiments and in clinical observations it was determined that nicotine may cause degenerative changes in the myocardium and sclerotic processes in the central and peripheral vessels. The question arises whether and to what extent the thyroid (in connection with other secretory glands) and the cholesterol metabolism are involved in changes that develop as the result of nicotine intoxication. In order to determine the thyroid involvement, the iodine content of the blood was watched and the control of the cholesterol content of the blood appeared desirable in view of its correlation with the epinephrine metabolism and in view of the vascular disturbances that develop after nicotine intoxication. In observations on human subjects (smoking with inhalation) and on animals (injection of nicotine), two types of iodine curves could be differentiated. The first indicated an increase in the iodine content in acute nicotine intoxication, the second indicated a reduction of the iodine content in acute intoxication. The first was found chiefly in persons who smoke only occasionally, are hypersensitive to nicotine or have hyperthyroidism. The second was found in habitual smokers and in persons with hypothyroidism. In animals the curve showed an analogous behavior in acute and chronic nicotine intoxication. The curve indicating the cholesterol content of the blood was less characteristic. The thyroids of the animals with chronic nicotine intoxication showed histologic changes in the form of thyroiditis or atrophy.

**Bactericidal Power and Antitoxic Action of Vitamin C**—After pointing out that in previous studies he was able to show that, in addition to an alimentary C-avitaminosis (scurvy), there is also a toxic form that develops in infectious diseases such as diphtheria, von Gagy reports his studies on the bactericidal and antitoxic action of vitamin C. He found that virulent pathogenic bacteria have a high degree of sensitivity to vitamin C. If diphtheria bacilli are put in a solution of vitamin C

they retain their capacity for growth up to an exposure of two hours, but if the exposure to vitamin C has lasted four hours the capacity for growth disappears. Even bacilli that have been under the influence of vitamin C for two hours have lost their virulence to a considerable extent. Whether the bacteria that have been killed by vitamin C action stimulate antibody formation has not been determined as yet. Not only are the bacteria impaired by vitamin C but the vitamin C is also impaired by the bacteria. There is a parallelism between the sensitivity to vitamin C and the impairing action on it. Diphtheria bacilli lose these two characteristics in the course of recovery. Vitamin C has a prophylactic value in that it exerts an inhibiting effect on the bacterial flora of the organism. It has a therapeutic effect, because it detoxicates and reduces the virulence. The development of a toxic C-avitaminosis in infectious diseases is due to the fact that the C factor is destroyed in the act of detoxicating and binding. The author concludes that there is theoretical justification for the administration of vitamin C in certain infections and communicable diseases, but he admits that the time and manner of the practical application have not been determined as yet.

### Medizinische Klinik, Berlin

32 141 172 (Jan 31) 1936 Partial Index

What Practitioner Should Know About Lymphogranuloma Inguinale H Lohé—p 141

\*Diagnostic Significance of Distant Symptoms in Ulcers of Stomach

and Duodenum H Diefenthaler—p 149

Diagnosis of Open Foramen Ovale H Bix—p 150

Treatment of Pneumonia K Nissen—p 151

**Distant Symptoms in Ulcers of Stomach and Duodenum**—Diefenthaler calls attention to the fact that Oefelein observed in patients with gastric and duodenal ulcers the presence of a unilateral dorsal reflex in response to stroking the skin in the region of from the seventh to the twelfth dermatomes. Oefelein found also that this reflex was generally missing in healthy persons and that it disappeared after the gastric or duodenal ulcer had healed. The author in studying this reflex, made the same observations on healthy persons as did Oefelein, that is, he found the reflex missing. However when he studied the reflex on patients with internal disorders he discovered it in approximately half of the patients. To be sure it was rarely unilateral but was usually elicitable by stroking both sides of the back although it was not always equally intense on the two sides. Among the patients in whom the reflex was elicitable there were a number who had a gastro-intestinal ulcer. However, the reflex was absent in approximately one third of the patients with gastro-intestinal ulcers and it was only slight in others, it was clearly elicitable in about half of the patients with ulcer. A review of the cases without gastro-intestinal ulcers, in which the reflex was positive and their comparison with the ulcer cases in which the reflex existed disclosed that the dorsal reflex is elicitable especially in patients in whom a hyperesthetic zone exists in the back. He thinks that the dorsal reflex has some connection with this hyperesthetic zone and points out that for this reason it has only slight value in the diagnosis of gastric and duodenal ulcers. Onodera has stated that in patients with ulcers of the stomach or the duodenum there is a point that is painful to pressure at the site of insertion of the median gluteal muscle between the anterior superior iliac spine and the sacrum. The author found this painful point only in rare cases and concludes that its diagnostic significance is slight.

### Medizinische Welt, Berlin

10 109 144 (Jan 25) 1936 Partial Index

\*Significance of Porphyrins for Lead Intoxication C Carric—p 109

Mineral Metabolism of Skin J Dorffel—p 113

Dermatoses in Anemic Patients P Chevalier—p 120

Diseases of Testes W Richter—p 122

Pulmonary Changes in Boeck's Sarcoid Margarete Saacke—p 124

**Significance of Porphyrins in Lead Poisoning**—Carric shows that lead poisoning is the most frequent form of the toxic porphyrias, other forms of which may be caused by the barbituric acid derivatives by sulfur preparations and by other toxic substances. He points out that, in view of the fact that porphyria of unknown origin has the same clinical aspect as

toxic porphyria it is necessary to search for a toxic cause, particularly lead in all cases of porphyria. After discussing the structure of the porphyrins and their chemical relation to the blood and bile pigments, he states that Schreus classifies the porphyrias under primary forms (elimination of porphyrin I) and secondary forms (elimination of porphyrin III). The classification shows that toxic porphyria (lead poisoning) belongs to the secondary forms. Then the author discusses the demonstration of the porphyrias by means of various methods and he evaluates the diagnostic significance of the porphyrins. In this connection he points out that, although a single test may give information about the porphyrin values, repeated tests are more reliable. It has been determined also that there is a relationship between the quantitative elimination of porphyrin and the severity of the symptoms of lead intoxication. In discussing the effects of the porphyrins the author stresses their action on the blood vessels and says that the frequently observed increase in the blood pressure as well as the oliguria can be ascribed to such vascular effects. Further attention is called to the relations between the porphyrins and the calcium metabolism and to the affinity of the excessive porphyrins for the bones. In the treatment of lead poisoning an alkaline diet is advisable and eventually alkaline substances may be administered. Calcium therapy has likewise been recommended as helpful and liver therapy in the form of the injectable extracts has proved effective.

#### 10 183 218 (Feb. 8) 1936 Partial Index

\*Striae Distensae as Hypophyseal Symptom in Basophil Adenoma of Anterior Hypophysis (Cushing's Syndrome) and in Arachnodactylia (Marfan's Symptom Complex) with Hypophyseal Tumor V Schilling—p. 183

Differential Diagnosis of Bone Diseases of Children E Hüsler—p. 187

Malaria in Northwestern Germany P Muhlens—p. 190

#### 10 219 254 (Feb. 15) 1936 Partial Index

\*Striae Distensae as Hypophyseal Symptom in Basophil Adenoma of Anterior Hypophysis (Cushing's Syndrome) and in Arachnodactylia (Marfan's Symptom Complex) with Hypophyseal Tumor V Schilling—p. 219

Increasing of Pharmacologic Action of Medicines by Reduction of Hydrogen Ion Concentration in Organism A Sztankay von Hermann—p. 222

Disorders of Epididymis W Richter—p. 221

#### 10 255 290 (Feb. 22) 1936 Partial Index

Vitamins in Surgery H J Lauber—p. 255

\*Striae Distensae as Hypophyseal Symptom in Basophil Adenoma of Anterior Hypophysis (Cushing's Syndrome) and in Arachnodactylia (Marfan's Symptom Complex) with Hypophyseal Tumor V Schilling—p. 259

Fight Against Cancer and Colposcopy F Leip—p. 262

Rapid Serologic Diagnosis of Syphilis P Dahr—p. 265

**Striae Distensae as Hypophyseal Symptom**—Schilling reports the clinical histories of two young men who had apparently opposite disturbances (obesity and emaciation) but both of whom had the bluish red striae distensae occasionally seen during pregnancy. The first patient who at the age of 11 years had sustained a peculiar accident with probable fracture of the base of the skull, had the symptoms of Cushing's pituitary basophilism. The second patient presented the aspects of Marfan's symptom complex with hypophyseal tumor, designated by him as dolichostenomelia and later called arachnodactylia. The author shows that the striae distensae are a clinically important general symptom indicating the various forms of hyperfunction of the anterior lobe of the hypophysis. In Cushing's syndrome this hyperfunction concerns chiefly the basophil cells, whereas in the almost diametrically opposed Marfan type (arachnodactylia) the hyperfunction probably involves chiefly the eosinophil cells. It is possible that a slight increase in the growth hormone of the eosinophil cells, if it begins with the fetal period results in the Marfan type if there is a considerable increase in the growth hormone of the eosinophils during the period of growth, giant growth may be the result, and in older persons it may cause acromegaly. The Marfan type is not necessarily hereditary, but apparently it may be caused by a conditional disturbance in the formation of the hypophysis. This disturbance may later cause the development of hypophyseal tumors that act in the same manner. The excessive elimination of the luteinizing hormone in the urine of a precocious boy with the Marfan type and hypophyseal tumor indicates that this

hormone is produced in other than the basophil cells of the hypophysis, but the excessive quantity of this hormone indicates also that it is of hypophyseal origin, since production in the placenta would be impossible in this case. Moreover it corroborates the clinical supposition of a tumorous degeneration of the anterior lobe of the hypophysis, the structure of which does not seem to correspond to the basophil or eosinophil adenomas.

### Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

101 121 248 (Jan.) 1936 Partial Index

Uterine Cysts as Special Form of Endometriose P Thiessen—p. 129

Presence in Blood of Substances Inhibiting Fermentation H Mommen and H Glaser—p. 138

\*Use of Blood Transfusion in Puerperal Fever and in Sepsis After Delivery J Erbslohn—p. 156

Significance of Sensory Nerve Pressure Reflexes (According to Kehrner Münster) in Eclampsia and Preeclampsia H Hoffmann—p. 163

**Use of Blood Transfusion in Puerperal Fever**—Erbslohn reports the results obtained with blood transfusions in the treatment of seventy-five cases. Blood transfusion was resorted to in nearly all cases of puerperal sepsis except those in which the septic process had already become localized. In the latter cases the author regards blood transfusions as useless, except when a simultaneously existing secondary anemia has to be treated. Blood transfusions were dispensed with also in cases of cardiac and circulatory weakness in which there existed signs of insufficiency or in cases with stasis in the lesser circulation particularly with extensive septic pneumonias. Other contraindications were endocarditis, extensive thrombophlebitis, severe renal disorders and hepatic metastases. In the cases in which blood transfusion was employed it was combined with all other methods that are customarily employed in the treatment of puerperal fever. There were twenty-seven fatalities among the seventy-five cases in which blood transfusion was employed; that is the mortality rate was 36 per cent. The author points out that this figure corresponds approximately to the results that have been obtained with the expectant conservative treatment. A number of the cases that had a fatal outcome in spite of the blood transfusion were of foudroyant sepsis, in which the defense powers of the organism were completely inadequate to check the infection. In other cases the condition was already rather desperate (beginning circulatory weakness and multiple septic metastases) and blood transfusion was a last resort. On the other hand, there were nineteen extremely grave cases among the forty-eight in which recovery occurred after blood transfusion. In the severe cases of sepsis the author gained the impression that the transfusion is of little avail in those instances in which the hemoglobin content and the number of erythrocytes are almost normal, however, it produces favorable results in the cases in which great loss of blood has produced a secondary anemia or in which the septic process has reduced the hemoglobin and erythrocyte values. In the latter cases a single transfusion is as a rule inadequate and it is advisable to control the blood picture from time to time and repeat the transfusions as often as the blood status indicates. After admitting that in spite of blood transfusion the mortality of puerperal fever or sepsis is still rather high, the author calls attention to the so called immunotransfusion and to the transfusion of convalescent blood. The first of these two procedures involves loss of time as well as considerable inconvenience to the donor (vaccination, chills). The second method is less complicated but it presents the problem of securing a suitable donor.

### Monatsschrift für Kinderheilkunde, Berlin

64 329 472 (Jan. 17) 1936 Partial Index

\*Treatment of Empyema and Blood Transfusion M Schlegel—p. 379

Symmetrical Parietal Fenestrations E Hassler—p. 337

Peculiarities in Vascular System of Heart of Children Convalescing After Typhoid F D Gurewitsch—p. 341

Modification of Blood Sugar Curve by Single Fat Tolerance Test H Knauer—p. 356

**Treatment of Empyema and Blood Transfusion**—Schlegel stresses that experience has shown that the more conservative methods produce better results in empyema of nurslings and small children. He says that at his clinic pure-

tures are being postponed as long as possible, generally as long as there are still inflammatory processes in the lungs. The first aim of the treatment should be to strengthen the child's organism in its defense against the micro-organisms. In fourteen of thirty cases it proved possible to obtain retrogression of the empyema by rest, application of heat, proper feeding and blood transfusions. In ten children one or several punctures were made, either because the general condition indicated it or because symptoms of displacement appeared. A drain was introduced in six cases in which the empyema rapidly filled again. The author stresses the great value of blood transfusions in children with empyema. He says that this measure not only has a favorable effect on the local symptoms but also improves the general condition to such an extent that conservative measures are often adequate in counteracting the empyema. He deplors that the method was not satisfactory in nurslings, as four of the six fatalities from empyema concerned nurslings weighing less than 4,600 Gm. In describing the method of blood transfusion he says that he employs donors of the same blood group. For technical reasons he uses citrated blood. He gives a preliminary injection of 5 or 10 cc and five or six hours later performs the main transfusion in the course of which he transfuses from 15 to 20 cc for each kilogram of body weight.

### Wiener klinische Wochenschrift, Vienna

49 129 160 (Jan 31) 1936 Partial Index

- \*Behavior of Homologous Arteries and Its Significance for Localization of Disease R Wiesner—p 129
- Cerebral Myxedema E Risak—p 133
- First Aid in Sudden Life Threatening Conditions of Nontraumatic Origin L Petschacher—p 135
- Organotherapeutic Experiments with Aid of Extracts of Pineal Body Especially in Sexual Hyperexcitability R Hofstetter—p 136
- Some Peculiarities of Thinking in Patients with Aphasia M S Lebedinsky—p 137
- \*Oliguria Resulting from Retention of Sodium Chloride E Lauda and O Wichtl—p 141

**Homologous Arteries and Localization of Disease—** Wiesner selected the brachial artery for his comparative studies on homologous arteries. A factor that induced him to select this region was the statement of a dermatologist that freezing of the left hand is observed more often than of the right hand. Since there is a connection between the effect of cold and the blood supply, the author decided to investigate whether anything could be found in the vascular apparatus that would explain this. He states that homologous vascular regions of the brachial arteries in the same person show in the majority of cases different widths of the lumens and different wall thicknesses. This asymmetry of the vessels is usually the result of an increase in the size of the right brachial artery. There are histologic changes that correspond to the differences in size in the arteries of the two sides. During the first months of life the difference in the right and left brachial arteries is not yet apparent; however, it begins to appear during early childhood. The fact that the right brachial artery is wider and thicker makes it appear likely that the change has some connection with right handedness. It might be a process of adaptation, for the greater activity of the right hand and arm requires a greater blood perfusion of the tissues. From this point of view it appears that the morphologic changes are the manifestation or result of the changed functional activity. The author stresses that the brachial artery is only one example and that similar conditions may be found in other regions. He was induced to study the brachial artery because freezing of the left hand is more frequent than freezing of the right. He suggests that this might be due to the fact that in the narrower vessel the vascular tonus is greater than in the wider vessel and that, if as the result of the cold the tonus is further increased, the blood stream encounters greater resistance in the left brachial artery. However it is also possible that the wider vessel has a neuromuscular apparatus that functions better in response to the stimulus of cold and thus effects a better blood perfusion under the changed conditions.

**Oliguria Resulting from Sodium Chloride Retention**—Lauda and Wichtl describe two cases of oliguria caused by the retention of sodium chloride. In one case the condition

was rather mild in that, after a certain degree of retention had been reached, the sodium chloride was eliminated and the formation of edema was thus prevented. In the other patient however, the condition was grave in that the retention of sodium chloride resulted in anasarca. In the second case the true nature of the disorder had not been recognized. The severe pains in the renal region, of which the rather neuropathic patient complained, had led to two decapsulations and finally to the extirpation of a normal kidney. In view of the latter case the authors discuss the classification of oligurias. They stress that thus far there is proof only for a primary oliguria caused by primary oligodipsia and for oliguria resulting from the retention of sodium chloride whereas there are no proofs for the existence of a constitutional renal oliguria or for an oliguria caused by primary retention of water in the tissues.

### Zentralblatt für Gynäkologie, Leipzig

60 305 368 (Feb 8) 1936

- \*Radium Treatment of Cervical Carcinoma with Exteriorization of Small Pelvis T Daels—p 306
- Histologic Proofs for Results of Irradiation with Exteriorization of Small Pelvis in Cervical Carcinoma G van Damme—p 310
- Primary Mortality in Ray Treatment of Uterine Cancer M Matousek—p 318
- Primary Carcinoma of Uterine Cervix and Later Primary Carcinoma of Mammary R Cordua—p 322
- Metastasis of Chorionepithelioma in Brain with Negative Hormone Reaction O Hajek and A Bareuther—p 322
- \*Cobra Toxin as Analgesic in Gynecologic Carcinomas J Nekula—p 328

**Radium Treatment with Exteriorization in Cervical Carcinoma—**The difficulties that are encountered in the course of radium treatment of tumors in the small pelvis induced Daels to resort to the exteriorization of the small pelvis. To do this, he makes a transverse incision into the abdominal wall 1 cm above the pubic symphysis and above Poupart's ligament, then ligates the epigastric vessels, sutures the lower edge of the peritoneum to the skin above the symphysis and the inguinal canal, severs the peritoneum of the posterior half of the pelvic inlet up to the pelvic mesocolon, sutures the upper edge of this line of incision to the parietal peritoneum of the anterior abdominal wall, sutures the lower edge to the skin and thus forms a new diaphragm at the level of the promontory. He found it advisable to wait from three to five days after the exteriorization before beginning the radium treatment. Then the radium tubes can be introduced without difficulty to the right and left of Douglas' pouch and to the right and left of the vesico uterine fold. In the beginning the author alternated between periods of treatment and periods without treatment (four or five days in length) but later he found that the treatment could be continued uninterruptedly for from ten to eighteen days. He stresses as the advantages of the method the possibility of uniform irradiation of the small pelvis, the prevention of injuries to the connective tissue, the possibility of prolonged weak irradiations, the absence of retention of infected secretions from the cancerous focus, which frequently occurs in the case of intra-uterine or intravaginal irradiation and, finally, the possibility of careful control.

**Cobra Toxin as Analgesic in Gynecologic Carcinomas**—Nekula tested the analgesic action of cobra toxin in ten patients with genital carcinoma. He says that the cause of the analgesic action of cobra toxin is not definitely known as yet but that it is probably the result of a paralytic effect on the sensory nerves. The toxin of the Indian cobra (*cobra de capello*) is used for analgesic purposes because it contains the most neurotoxins and the least hemolysins of any snake venom. The author obtained a reduction of pain in all ten cases in which he employed the cobra toxin, and in two cases he was able to suppress the pains completely. He injected the toxin subcutaneously in the region of the deltoid muscle. For the cutaneous disinfection alcohol was used (never tincture of iodine), and it is stressed that the simultaneous internal medication with iodine is likewise inadvisable. With regard to the dosage he says that the best results were obtained when small doses (about 10 mouse units) were administered every second day. In this manner it was possible to avoid the general reactions in the form of gastro intestinal disturbances, and the reduc-

tion in pain was continuous. This was not possible when the injections were given at intervals of three or four days. The author administered the cobra toxin always after radium or roentgen treatment, never simultaneously with it. He points out that cobra toxin is now also used for the therapy of cancer and mentions some of the investigators in this field. He admits that he himself never observed an objective improvement of the local gynecologic condition. Nevertheless he thinks that in the future snake venoms might be of greater importance in their direct action on cancer tissues than in their analgesic action.

### Sovetskaya Khirurgiya, Moscow

Pp 1184 (No 8) 1935 Partial Index

Results of Oscillometry in Endarteritis Obliterans N N Kulm—p 23

Sliding Hernias of Cecum and Hernial Appendicitis I S Vengerovskiy—p 42

\*Artificial Gastric Juice in Primary Closure of Compound Fractures V R Yanovskiy—p 50

Donor Problem and Refuse Blood M A Dershavetz—p 58

Value of Roentgen Studies in Diagnosis of Perforations of Gastrointestinal Tract A J Ivanova—p 65

**Use of Artificial Gastric Juice in Compound Fractures**—Yanovskiy states that debridement and primary closure of lacerated traumatic lesions is permissible in the first six hours only. After this period, in order to be efficacious, the treatment must be combined with the use of antiseptics. In 1930 Yaure and Busurina reported experiments in which they demonstrated the markedly bactericidal action of artificial gastric juice against a number of pathogenic bacteria in vitro. They showed that the bactericidal action of the artificial gastric juice depended on the combined action of its components, hydrochloric acid and pepsin and not primarily on the concentration of the hydrochloric acid. Besides the bactericidal action the juice aids in the autolysis and sloughing of the devitalized tissues. The author treated thirty patients having compound fracture of the bones by debridement of the wound, irrigation of the wound with artificial gastric juice and primary suture of the skin. Of the thirty injuries fifteen were fractures of the tibia, four of the femur, five of the forearm, four of the humerus and one of a phalanx; the remaining injury was a compound dislocation of the hip. More than half of the patients were treated from twelve to twenty-four hours after the injury. Twenty-six were healed by primary intention and four developed an infection. The author concludes that the use of the artificial gastric juice will permit of extending the indications for the primary closure of lacerated wounds. The artificial gastric juice was prepared according to the following formula: diluted hydrochloric acid 18 parts, pepsin 20, distilled water 1,000, glycerin 5.

### Hospitalstidende, Copenhagen

79 85 112 (Jan 28) 1936

\*Anemia in Cancer of Stomach E Mogensen—p 85  
Treatment of Varices with Injection of Larger Amounts of Highly Concentrated Sugar Solution and Ligature of Vein F Sjøgaard—p 99

Glycolytic Enzymes in Spinal Fluid A Faurbye—p 110

**Anemia in Cancer of Stomach**—Mogensen states that in seventy-five cases of gastric cancer the average percentage of hemoglobin was 72.8. In 31 per cent of the cases there was no anemia and he concludes that the presence of a normal percentage of hemoglobin is without significance in the diagnosis of cancer of the stomach. No connection existed between achylia and tendency to anemia or between the degree of occult hemorrhage and anemia and the anemia was independent of age, sex and duration of the disease. Undernutrition and cessation of the antianemic function of the stomach are regarded as the main causes of the anemia. Two cases of cancer of the stomach with marked anemia as the chief symptom are described: one with a hypochromic and microcytic anemia which responded favorably to treatment with iron and the other with a hyperchromic megalocytic anemia which reacted well to treatment with liver and stomach. The importance is stressed of active treatment of the anemia in cancer of the stomach by (1) the best possible nutrition both quantitatively and qualitatively and (2) direct antianemic treatment with iron or with liver and stomach or both, the choice being based on the hematologic picture.

### Norsk Magasin for Lægevidenskapen, Oslo

97 113 232 (Feb) 1936

\*Relations of Metabolism in Lipoidosis Review and Casuistic Report C Ræder—p 113

Method of Analysis in Determination of Cholesterol in Serum Bile and Feces E J Øy—p 144

Traumatic Psychoses E Røn—p 146

Remarks on Reflex Anuria in Connection with Case of Anuria W Øtnes—p 164

Treatment of Condylar Y Fractures W Øtnes—p 169

\*Still's Disease M Hajks—p 173

\*Acute Pancreatic Necrosis Three Rare Cases R Grønn—p 181

Course of Pulmonary Tuberculosis in Children L Salomonsen and H Trættemberg—p 194

**Metabolism in Lipoidosis**—A woman aged 31, had multiple xanthomas on the fingers, elbows and one heel. Examination of her family revealed hereditary hypercholesterolemia, apparently handed down by both sexes as a dominant factor and expressed in part by xanthoma formation, in part only by chemically demonstrable changes in the blood. The total cholesterol and fat in the patient's blood were increased to about 250 per cent, the phosphatide to from 150 to 200 per cent. Chemical examination of one xanthoma showed 24.9 per cent of cholesterol, 20.4 of fat and 0.26 of acid phosphatide phosphorus in the dry substance. The tolerance test with cholesterol caused only a weak rise in cholesterol values. An attempt to withhold cholesterol caused no noticeable change in the cholesterol values in the blood. The amount of cholesterol in the bile and the feces was normal. Ræder concludes that the condition in his case is due not to a defect in elimination but to an unexplained defect in regulation. He says that, while there are several forms of disturbances in metabolism which may lead to xanthoma formation, this case belongs to a relatively well recognized type, a familial juvenile form. Many patients with the disorder die suddenly with the picture of heart disease and lipid deposits are found in the heart. A therapy to lower the lipid level in the blood is thus called for. Roentgen irradiation of the hypophysis region proved ineffective in the case described. At present the only treatment available is treatment with a cholesterol-free diet.

**Still's Disease**—Hajks says that in 1929 slowly increasing rigidity and swelling in the articulations of the extremities and rigidity of the spinal column, especially in the cervical portion began in a girl, aged 14. From 1930 through 1932 several periods of intermittent fever occurred, lasting from two to six weeks, with enlargement of the spleen and lymphatic glands, periosteal nodes in the wrists and elbows, kneecaps and ankles and in the middle of the forehead, pronounced muscular atrophy and a poor general condition. Physical development was greatly retarded, psychic development was about normal. The skin was gray and pale with yellowish brown pigmentation on the cheeks. There was onychogryposis of the nails of both big toes. Menstruation had not begun. Roentgen examination showed marked deficiency in calcification in the knee and wrist joints. Sixteen injections of fibrolysin were without effect on the condition. Since 1932 there has been no marked fever period and the condition seems about stationary. The clinical picture is thought to conform with that in Still's disease beginning in the first decade of life.

**Acute Pancreatic Necrosis**—Grønn says that his first case of traumatic isolated pancreatic lesion was the only one of its kind in 6,754 necropsies and that only five instances of traumatic pancreatic necrosis have been reported previously in Norway. The trauma is believed to have caused a primary crushing of the pancreatic tissue or pancreatic hemorrhages causing partial necrosis in either event leading to activation of trypsinogen into trypsin and to a weakening of the pancreatic tissue, resulting in autodigestion of the pancreas. In the second case, hemophilia, spontaneous hemorrhage in the pancreas activated the pancreatic enzymes and produced an acute hemorrhagic pancreatic necrosis developed after high strangulation of the afferent loop of the jejunum following resection of the stomach. The contents of the distended duodenum were forced into the pancreas through the pancreatic duct and activated the trypsinogen, with resulting autodigestion of the pancreas. The cause of death was autointoxication, mainly attributable to the high ileus but in part due also to the secondary pancreatic necrosis.



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## THE TREATMENT OF EARLY SYPHILIS

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CHICAGO

The treatment of early syphilis is now fixed on a firmer foundation than at any previous time in history. The standard method followed in the major clinics in this country was developed over a period of years of trial of diverse methods in many centers. Before this is discussed in detail, a brief review of the evolution of the subject of treatment will not be amiss.

Before the discovery of arsphenamine in 1910, mercury and potassium iodide were the chief weapons of defense and attack. These drugs accomplished results by aiding nature in building up its defenses to combat the invading infection. That they accomplished much there is no doubt, but that more efficient weapons were demanded is equally true.

Mercury was used by injection, by inunction and by mouth. For those of us who had some years of experience with these preparations alone, it is interesting to recall the numerous untoward effects that occurred. Even fatal results sometimes followed the employment of gray oil and the mercurous chloride by injection. These facts cause us to view similar happenings with the modern drugs with less criticism. On the other hand, we can also recall the good clinical results achieved, which sometimes were striking, in the late benign nodular and ulcerative cases.

Before 1905 the diagnosis depended entirely on clinical experience and the termination of treatment (if ever) also was predicated on the world experience of syphilologists.

The discovery of *Spirochaeta pallida* in 1905 made a positive diagnosis possible during the first few days of the existence of a lesion, which if untreated would in time develop into a clinically recognizable chancre. The elaboration of the Wassermann reaction some years later, together with precipitation tests, added other valuable means for the early detection of the disease. Its early recognition and institution of treatment was considered important but less so than at present on account of the slower action of the drugs then employed. There were some dissenters, however, who believed that treatment should be delayed until the so-called secondary manifestations appeared. By this time there has been established a certain amount of immunity, which is of value in protecting the patient from some of the more severe ravages of the disease. Removal of this natural protection by early treatment with inadequate amounts of arsphenamine has often been followed by more serious developments that would probably have been avoided without such treatment. This natural immunity is further exemplified by the

large number of cases of latent syphilis seen in every large clinic, in many of which the latency is permanent. This fact, however, does not relieve one of the responsibility of treating latent syphilis for several reasons. First, these patients are a menace to others to whom they may transmit the disease and if of the female sex, may transmit the condition to their offspring. And, second, efficient treatment greatly reduces the chance of development of the more serious forms of the disease in the viscera and nervous system.

It might be thought that, could an efficient method of treatment of early syphilis be developed and carried out whereby the major portion of this class could be cured, the late and more serious effects would be eliminated, i. e., visceral and neurosyphilis would be avoided. This fortunate result cannot happen for the reason that the large latent class previously mentioned pass the early stage unnoticed. They have had either mild or no appreciable signs of the disease in its early stage and it was therefore not recognized and this group will continue to furnish endless examples of the late stages.

In undertaking the treatment of early syphilis, one should bear in mind certain facts regarding its course. The natural tendency of the disease untreated is toward spontaneous cure. This is evidenced by the period of latency established by the production of immunizing substances, which hold the activity of the organisms in abeyance either temporarily or permanently. Interference with the establishment of this partial or complete immunity by inefficient treatment may advance the late serious developments in the central nervous system and viscera appreciably.

The development of immunity and the occurrence of spontaneous cure in a certain percentage of cases of untreated syphilis were admirably shown by Bruusgaard<sup>1</sup>. In the Oslo clinic where the standard treatment of the time, consisting of mercury and potassium iodide, was considered of little or no value, 2,181 patients with primary or so-called secondary syphilis passed through, between the years 1891 and 1910. Fifteen years later, Bruusgaard reexamined by modern methods 309 of this number and discovered the cause of death in 164 others, in forty of whom necropsies were performed.

In this group neurosyphilis developed in 9.5 per cent, cardiovascular syphilis in 12.8 per cent, benign late syphilis in 12.2 per cent, latent syphilis (no clinical signs, positive Wassermann reaction) in 14.1 per cent, spontaneous cure in 27.9 per cent, and death resulted from syphilis other than of the cardiovascular or central nervous system in 0.8 per cent and from other causes in 22.6 per cent. These reliable statistics reveal the interesting fact that more than 25 per cent of the

<sup>1</sup> Bruusgaard cited in Moore, p. 23.

patients made a spontaneous recovery and that approximately 64 per cent were individually unharmed by the disease

The treatment of latent, visceral and late benign syphilis, which includes the late lesions of the skin and osseous system and syphilis in pregnancy, is a major aspect of the syphilis problem but will not be fully discussed here. The development of an efficient method of treatment of early syphilis revolves around arsphenamine and bismuth compounds, which can best be brought out by some historical data.

Beginning in October 1910, my associates and I treated a group of cases with arsphenamine furnished by Dr Simon Flexner of the Rockefeller Institute at the suggestion of Capt H J Nichols of the U S Army. The results were recorded in THE JOURNAL in February 1911<sup>2</sup>. The drug was then given subcutaneously, and a single injection was expected to be sufficient to eradicate the disease. The injections were painful and not devoid of danger. Somewhat later the drug was administered by intramuscular injection as an emulsion in oil. This method was very efficient therapeutically but was not infrequently accompanied by untoward results both locally and constitutionally. Very shortly afterward the intravenous method of administration was developed and universally adopted. The hope that a single injection would be sufficient to eradicate the disorder was soon dissipated and, as time passed, the number of injections considered adequate has been greatly increased.

In our comparatively early work we found that administration of the drug in gradually ascending dosage was inefficient, but we still adhere to a small initial dose. We also determined that more efficient response was had by giving the first three injections during the first week rather than making a five or seven day interval from the beginning.

Experience soon revealed that arsphenamine alone was inadequate, so its use was combined with that of mercury, and this combined method of treatment was universally adopted. Bismuth appeared in about 1920 and its use and the development of new preparations was energetically prosecuted, especially by French investigators. In a comparatively short time its great value became evident, and its use supplanted to quite an extent that of mercury. Numerous valuable preparations of bismuth have been elaborated. They are divided into three groups: water soluble, oil soluble and insoluble. We have employed an insoluble salt from the beginning as a routine procedure.

When it became established that the combined use of these heavy metals was the best procedure, numerous plans were devised and tested. In the major portion the treatment was divided into courses, each consisting of a certain number of injections of arsphenamine followed by a given number of injections of mercury (early) or a bismuth compound (later). Such courses were separated by a period of rest. Such a plan was used in the extensive treatment required during the World War. Five courses were generally recommended during the first two years.

This method was widely used for some time until it became evident that numerous clinical and serologic relapses developed during the resting periods, which fact led to the continuous method now generally employed. Even with this method a moderate number of resistant cases are encountered, both clinically and serologically, but fortunately the number is small. The

continuous method was first suggested and carried out in Europe by Almkvist<sup>3</sup> and in this country by Keidel,<sup>4</sup> though the latter employed this method several years before making the report. Much study, both experimental and clinical, has been made to determine the relative value of the various arsphenamines. I believe that arsphenamine is the treatment of choice, but its employment requires more time and skill in its administration, and untoward results are more likely to occur. Neoarsphenamine practically fulfils all the necessary requirements and its simplicity of preparation for injection and administration commends it to the average practitioner. Sulfarsphenamine proved to be toxic and is employed only when intravenous injections are not possible. Silver arsphenamine is very valuable, both clinically and serologically, but when given in large amounts is not unattended with danger (pigmentation). Spiegel<sup>5</sup> found that if a maximum dosage of 8 Gm is not exceeded this deleterious effect may be avoided. Bismarsen is a combination of arsphenamine and bismuth and may be used in exceptional cases.

In this country it now is the consensus that eighteen months' continuous treatment is adequate to eradicate the disease in most instances. A minimum of twenty injections of arsphenamine is required in this period.

A rule that I have followed from the beginning requires an examination of the patient preliminary to the institution of treatment. This includes an examination of the heart, the eyes and the urine. A record of these observations becomes valuable for future reference as well as to detect contraindications for the use of arsphenamines.

With the efficient drugs available, treatment should be instituted at the earliest possible moment, i e, when a diagnosis has been made either by the demonstration of *Spirochaeta pallida* or by a positive Wassermann reaction or definite clinical evidence. If started early before the natural defense mechanism has had time to function, the necessity of continuous vigorous treatment is imperative. By any of the modern schemes of treatment the Wassermann reaction becomes negative and all signs of the disease have disappeared by the end of the first course. If at this time a lapse of treatment occurs, either voluntarily or through some neglect by the patient himself, disastrous developments may occur such as neurorecurrences or other relapses, so that it is of the utmost importance that no interruption in the treatment be allowed under any circumstances. If the Wassermann reaction remains positive after the first period in spite of continuous treatment or if a Wassermann relapse occurs, examination of the spinal fluid is indicated.

A comprehensive study of the disease with results of various methods of treatment was carried out in this country under the direction of the U S Public Health Service and five cooperating university clinics.<sup>6</sup> The material studied included the records of 75,000 cases of syphilis, of which 3,244 were early cases. The observations in this survey are of the utmost importance and the recommendations for the management of the disease in all its phases and situations are worthy of adoption. These statistics reveal the fact that in early syphilis the continuous method of treatment

<sup>3</sup> Almkvist. Acta derm venereol. 1: 97, 1920.

<sup>4</sup> Keidel, Albert and Moore, J. E. Bull. Johns Hopkins Hosp. 30 (July) 1926.

<sup>5</sup> Spiegel, Leo. A Discoloration of the Skin and Mucous Membranes Resembling Argyria Following the Use of Bismuth and Silver Arsphenamine. Arch. Dermat. & Syph. 23: 266 (Feb.) 1931, quoted by Becker, S. W. and Ritchie, E. B. Argyria Following Excessive Use of Silver Arsphenamine. J. A. M. A. 97: 389 (Aug. 8) 1931.

<sup>6</sup> Stokes, J. H. and others. Standard Treatment Procedure in Early Syphilis. J. A. M. A. 102: 1267 (April 21) 1934.

achieved satisfactory end results in 79.7 per cent of cases, whereas similar results occurred in 65 per cent with the intermittent method (rest intervals).

A schematic outline of treatment published by Moore<sup>7</sup> in collaboration with the university group may be considered a standard method of treatment for early syphilis. This scheme calls for alternate periods of arsphenamine and bismuth compound for seventy weeks with no rest intervals. The total injections of arsphenamine are thirty-two and of bismuth thirty-eight. There are essentially five courses each of arsphenamine and bismuth. Each course of arsphenamine includes six weekly injections with the exception of the first at which time eight are given the first three of which are at intervals of five days. Each course of arsphenamine is followed by one of bismuth. The bismuth courses increase progressively the number of injections in the respective courses being four in the first course six in the second eight in the third and ten each in the fourth and fifth.

Potassium iodide is given with the bismuth in the first series of injections. If mercurial ointment is substituted for bismuth potassium iodide is given with it in each course. In seronegative primaries in which a positive Wassermann reaction does not develop treatment may be suspended at the end of the fourth course. A spinal fluid examination is recommended at the end of the second course. During the year of observation after the cessation of treatment several blood Wassermann examinations are made and at the end of the year a complete neurologic examination including the spinal fluid and complete physical examination with particular reference to the cardiovascular system. Thereafter there should be an annual physical examination together with a blood Wassermann test.

In the syphilis clinic of the Central Free Dispensary where the work is carried out under the supervision of Dr Skolnik the continuous method of treatment has been in operation for six years. In this clinic neoarsphenamine is used and five courses are given covering a period of twenty-seven months. Here the first three injections are given in the first week then three at intervals of five days then four combined injections of neoarsphenamine and bismuth at weekly intervals this being followed by alternating series of bismuth and neoarsphenamine separately throughout the following courses. Using the bismuth early in the first course appears justifiable by the results obtained. It is interesting to note here that in Moore's scheme<sup>8</sup> published in his work on syphilis in 1933 he advised bismuth simultaneously with the first four doses of arsphenamine.

The object of using bismuth with the first few injections is to increase the natural defense forces which have been held in abeyance by the arsphenamine.

A summary of the treatment in 124 cases of early syphilis in our dispensary clinic, furnished by Drs Skolnik and Webster showed one mucocutaneous relapse eight serologic relapses and one neurorecurrence. The patient with the neurorecurrence received forty-one neoarsphenamine and seventy-five bismuth injections in thirty-three months. The Wassermann reaction of the spinal fluid at this time was positive. All other tests were negative.

There were eleven gastro-intestinal one Jarisch-Herxheimer and dermatitis (one of which was of fixed

type) and three jaundice reactions. A complete report of the results of treatment in all its phases is in preparation and will be made soon.<sup>9</sup>

The treatment of early syphilis in pregnancy is that of the nonpregnant if instituted early, i.e., previous to the third to fifth month. This includes alternating courses of arsphenamine and bismuth without interruption. If instituted later, weekly injections of arsphenamine alone are recommended until the termination of pregnancy.

The treatment of early acquired syphilis in children is identical with that of adults, the dosage being modified to fit the weight. If the intravenous method is not practicable, sulfarsphenamine may be used by the intramuscular route.

The treatment of early syphilis in the elderly should be sufficiently energetic to protect from recurrences and the later more serious developments but does not require as large dosage of arsphenamine or the rigid adherence to the regimen suggested in younger patients for so long a period.

#### REACTIONS, LOCAL AND GENERAL, REQUIRING ATTENTION

Occasionally during an injection of arsphenamine pain is complained of extending up the arm to the shoulder. This is usually due to overalkalization of the drug and requires no further treatment than attention to this matter. Thrombosis which is due to the same cause, may be avoided in a similar manner. General reactions are much more important.

The Jarisch-Herxheimer reaction does not cause serious damage in early syphilis but may do so in the later stages. This reaction is due to the rapid destruction of a large number of spirochetes and to the liberation and absorption of their proteins. A constitutional reaction consists in elevation of temperature preceded by a chill, malaise and general aching. Focal symptoms consist in increased activity in affected areas. An early eruption barely visible becomes marked. These symptoms soon subside and are of no particular moment. When however, there is activity of the process in the larynx, heart or brain serious accidents might occur through activation of lesions in these situations. To prevent this reaction in early cases, the first dose of arsphenamine should be small. In late cases treatment with arsphenamine if used at all, should be preceded by courses of mercury, potassium iodide and bismuth.

**Acid Arsphenamine**—If through error arsphenamine is given without being alkalinized, serious results occur. If the full dose is injected, a fatal result occurs immediately. If during an injection a patient coughs, the injection should be stopped immediately and examination made of the arsphenamine to see if it has been properly prepared. If much of the drug is given there occurs severe coughing, oppression in the chest, pain in the back, pallor, syncope, circulatory collapse and immediate death. To combat these symptoms, if there is time, epinephrine is given by subcutaneous injection and oxygen by inhalation and the patient is kept warm in bed.

**Ether Odor**—Occasionally during the injection the patient complains of smelling ether. This phenomenon occurs within a few seconds after the beginning of the injection. It is due to action on the nasal mucosa of the arsenic itself or of ether used in its manufacture. This is unimportant and requires no treatment.

7 Moore J. E. Ven Dis Inform 10:53 (Feb 20) 1929.  
8 Moore J. E. The Modern Treatment of Syphilis. Springfield Ill. Charles C. Thomas Publisher 1933 p. 201.

9 Skolnik E. A. and Webster J. R. to be published.

**Gastro-Intestinal Reactions**—From 25 to 40 per cent of the patients receiving the arsphenamines have some gastro-intestinal reaction. This includes malaise, headache, nausea, vomiting and diarrhea, beginning from four to twelve hours after the injection. It lasts from a few hours to several days. It may be due to impure water, underalkalization of the arsphenamine, too rapid injection, dietary errors and constipation. When these conditions are corrected there is no reason why treatment should not be pursued with the arsphenamine.

**Nitritoid Crisis**—This occurs during the injection and is expressed by a feeling of heat, palpitation, oppression in the chest, suffusion of the conjunctivae, flushing of the face, coughing, vomiting, sometimes diarrhea, pain in the back, and falling of the blood pressure. Edema may be severe and occur on the face, lips, tongue and glottis, as well as on the extremities. Urticaria may supervene, and pain in the gums and teeth may be present. A severe syncope sometimes happens and the pulse becomes thready. While the symptoms appear alarming they are not important, as they pass off in from fifteen minutes to an hour. This reaction is due to physical causes and not infrequently to the rapidity of the injection. It has been termed speed shock. Certain batches of the arsphenamine seem more prone to induce it than others. Treatment consists in the immediate injection of 10 drops of a 1:1,000 solution of epinephrine intramuscularly. If this reaction is recurrent, 5 minims (0.3 cc) of epinephrine may be given before each injection. Stokes recommends ephedrine in the dosage of 50 mg a day during the arsphenamine period and the administration of from  $\frac{1}{60}$  to  $\frac{1}{50}$  grain (1 to 2 mg) of atropine before the injection.

**Shock Reactions**—These occur from the injection itself and resemble surgical shock and are treated in the same manner. The condition comes on a few hours after the injection and the hypothesis is given that it is due to acute adrenal injury. Treatment consists in application of heat in bed and the slow administration of 2 or 3 liters of a 10 to 15 per cent dextrose solution or a similar amount of physiologic solution of sodium chloride. Epinephrine has no effect on this condition.

**Cutaneous Eruptions**—Several of these are important. They include urticaria, various erythemas, herpes simplex and zoster, fixed eruptions, purpura and varying grades of dermatitis, including papular, papulovesicular, vesicular and exfoliative. Only those requiring special attention will be discussed. In the blood dyscrasias shown by purpura, further use of arsphenamine is contraindicated. The same is true in the sensitization type of exfoliative dermatitis. In this type even small doses given long after the dermatitis is cleared up will provoke a recurrence, as has been demonstrated by Moore and Robinson. Severe dermatitis exfoliativa sometimes follows one or more mild attacks of cutaneous disturbance, and it is therefore necessary to be on the alert and discover these mild reactions. In most instances, however, the severe attack develops without previous warning. The treatment of general exfoliative dermatitis with sodium thiosulfate popularized in this country by McBride and Dennie,<sup>10</sup> is accepted as of value by most workers, a notable exception being Moore<sup>11</sup> who after several years of experience found the drug of no value. In my own work I employ injec-

tions of dextrose recommended by Shaffer,<sup>12</sup> particularly those cases accompanied by edema, in conjunction with sodium thiosulfate. The drugs are given on alternate days, the sodium thiosulfate in the dosage of 1 Gm and the dextrose in the dosage of 20 cc of a 50 per cent solution.

**Argyria from Silver Arsphenamine**—This drug is very efficient but is not devoid of danger. Spiegel found that a maximum of 8 Gm is the limit of safety, and if this is observed pigmentation probably will not follow.

**Polycymitis**—Fortunately, these cases are rare. My personal experience consists in one example, and this ran a long continuous course with poor recovery.

**Hemorrhagic Encephalitis**—This is a grave and, fortunately, rare complication. This condition develops ordinarily after the second, third or fourth injection. The symptoms begin two or three days after the last injection and consist of severe headache, nervousness, apprehension, apathy, mental confusion, convulsions, urinary and fecal incontinence, dilated pupils, cyanosis, the development of a comatose condition and death within twenty-four to forty-eight hours. Schamberg and Wright recommend the following treatment. With the patient remaining in bed a dorsal puncture is done, removing 50 cc of fluid, and venesection, removing from 50 to 100 cc of blood, followed by a purge, large doses of sodium bicarbonate, subcutaneous injections of 5 minims (0.3 cc) of 1:1,000 solution of epinephrine every four hours and oxygen inhalations.

**Postarsphenamine Jaundice**—This complication is not uncommon and it is variable as to degree, from a simple symptomless icterus to an acute fatal yellow atrophy. All grades between the two are seen. In this brief paper it is not possible to discuss the subject thoroughly. By different authorities its cause is attributed to three factors: (1) a toxic action of the drug on the liver cells, (2) syphilis and (3) an intercurrent epidemic disease. Moore is of the opinion, with others, that in the various cases a combination of all these factors is the correct hypothesis. The further use of arsphenamine is temporarily abandoned. The treatment of the liver symptoms is largely symptomatic, rest in bed and a bland soft diet, together with saline cathartics. Moore recommends daily injections of calcium gluconate and Schamberg and Brown recommend calcium thiosulfate. In early syphilis on the suspension of arsphenamine and the subsidence of acute symptoms, bismuth and potassium iodide are continued. Arsphenamine may be resumed several weeks after the icterus is cleared up. In the beginning the dosage should be small, 0.05 Gm. That some remote result may occur is possible, and O'Leary<sup>13</sup> has already recorded cirrhosis of the liver in such patients several years after the original attack of arsphenamine icterus.

#### SUMMARY AND CONCLUSIONS

With modern methods of treatment, early syphilis can be eradicated in the majority of cases.

Continuous treatment with no rest periods gives the best results.

Alternate courses of arsphenamine and bismuth are recommended covering a period of at least eighteen months and employing a minimum of twenty injections of old arsphenamine or its equivalent with other arsphenamines.

<sup>10</sup> McBride W. L. and Dennie C. C. Treatment of Arsphenamine Dermatitis and Certain Other Metallic Poisonings. Arch. Dermat. & Syph. 7: 63 (Jan.) 1923.  
<sup>11</sup> Moore J. E. The Modern Treatment of Syphilis p. 89.

<sup>12</sup> Shaffer L. W. Treatment of Postarsphenamine Dermatitis. Arch. Dermat. & Syph. 29: 173 (Feb.) 1934.  
<sup>13</sup> O'Leary cited by Moore p. 102.

The Wassermann reaction is usually reversed by the end of the first period and should remain so permanently. The early reversal of this reaction indicates proper progress of treatment, but by no means does it relieve the physician of carrying out the outlined schedule.

An adequate amount of arsphenamine is absolutely essential and nothing save intolerance, indicated in the body of this paper, should reduce this. A standardized method of treatment for large numbers of patients is justifiable for the reason that this early group includes chiefly young, otherwise healthy, patients who tolerate much treatment with safety, and also because it is at this time that such treatment offers the best chance for eradication of the disease.

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## THE TREATMENT OF PERNICIOUS ANEMIA WITH AUTOLYZED LIVER CONCENTRATE

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In 1931 Reimann<sup>1</sup> noted that when fresh liver was digested in normal human gastric juice its antianemic potency in cases of pernicious anemia was enhanced. This was corroborated by Helmer, Fouts and Zervas<sup>2</sup>. Walden and Clowes<sup>3</sup> reported a similar potentiation of liver and liver extract-Lilly (N. N. R.) when these were incubated with fresh hog gastric tissue. They found that the effectiveness of liver and liver extract was increased three to four fold and that this was appreciably greater than could be accounted for by the simple additive effect of the liver or liver extract and

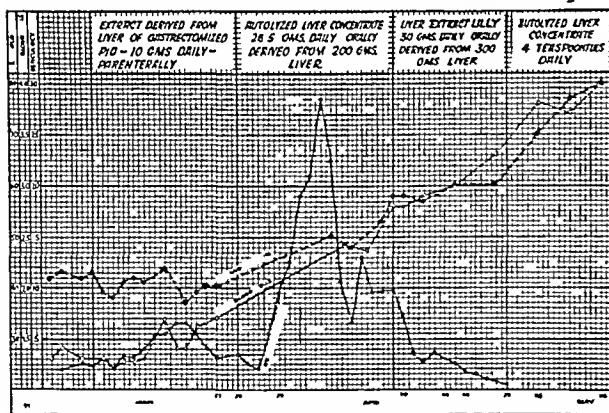


Chart 1—As 25 of autolyzed liver concentrate. A maximal reticulocyte response is obtained when 25 Gm daily is administered.

gastric tissue. The clinical usefulness of the product developed by Walden and Clowes was established by Fouts and Zervas<sup>4</sup>.

From the Department of Internal Medicine Yale University School of Medicine and the Medical Service of the New Haven Hospital.  
1. Reimann F. Versuche zur Potenzierung der Wirkung oral verabreicht Leber kurze wissenschaftliche Mitteilung Med Klin 27:880 (June 12) 1931.

2. Helmer O M, Fouts P J and Zervas L G. Increased Potency of Liver Extract by Incubation with Human Gastric Juice. Proc Soc Exper Biol & Med 30:775 (March) 1933.

3. Walden G B and Clowes G H A. Pernicious Anemia: Method Whereby Therapeutic Efficacy of Liver and Liver Fractions May Be Substantially Increased. Proc Soc Exper Biol & Med 29:873 (April) 1932.

4. Fouts P J and Zervas L G. Liver Gastric Tissue Preparations in the Treatment of Pernicious Anemia. J A M A 101:185 (July 1) 1933.

The idea that a similar enhancement of potency could be effected by simple autolysis of liver was suggested by Herron and McElroy.<sup>5</sup> Following the administration of autolyzed liver and concentrates of the product

### The Maintenance Treatment of Pernicious Anemia with Autolyzed Liver Concentrate Compared in Most Instances with Other Forms of Therapy

Autolyzed Liver Concentrate						Control Treatment*			
Patient	Age	Daily Dose in Level Teaspoons	Duration Weeks	Red Blood Cell Millions		Parenteral Weekly Dose or Oral Daily Dose	Duration Weeks	Red Blood Cell Millions	
				Mean	Range			Mean	Range
E B	38	1-4	102	4.7	5.6-4.1	Parenteral 100 Gm	19	4.5	5.2-4.1
J M	66	3-6	53	4.3	5.1-3.3	Parenteral 40-100 Gm	7	4.8	5.7-4
A W	39	2-3	40	4.6	5.2-4.2	Parenteral 40-200 Gm	12	4.6	5.7-4.1
W M	64	2-3	32	4.5	5.0-3.9	Parenteral 100-200 Gm	4	4.6	5.2-4.0
C W	57	2-3	59	4.7	5.7-4.0	Ventriculin 7-60 Gm	74	4.2	5.3-3.4
W A	36	3-6	24	4.3	4.2-3.8	Parenteral 100-200 Gm and 1/2 lb liver daily	10	4.6	5.0-4.1
J B	31	3-4	6	4.4	4.6-4.1	Parenteral 20-200 Gm	66	4.4	5.7-3.4
M M	31	2-4	41	4.6	5.4-4.0	Parenteral 100-200 Gm	2	4.7	5.0-4.0
L S	45	5-6	69	4.0	4.7-3.1	Ventriculin 10-15 Gm	19	4.4	4.8-3.9
F B	39	1-4	94	4.0	4.6-4.0	Oral extract 240-260 Gm daily and 1/2 lb liver daily	14	3.8	4.4-3.2
H H	32	2-5	93	4.2	4.9-3.8	Parenteral 100-167 Gm	8	4.4	4.6-4.0
D R	43	2-6	49	4.4	5.3-3.7	Parenteral 100-167 Gm	8	4.7	4.2-3.2
P C	69	4-6	24	4.3	4.0-4.1	Liver 1/2-1 lb daily	9	4.3	4.8-3.9
M W	69	2-6	97	4.3	5.0-3.7	Parenteral 100 Gm and 1/2 lb liver daily	11	4.4	5.1-4.0
A S	62	3	36	4.4	5.0-4.0	Parenteral 100-200 Gm	16	4.1	4.8-3.6
B F	47	2-3	36	4.2	4.4-4.0	Parenteral 100-200 Gm	67	4.1	4.8-3.1
M S	47	3-6	47	4.1	5.2-3.3	Oral Lilly ext 100-200 Gm	2	4.3	5.7-3.2
R K	37	3-6	25	4.4	4.7-4.2	Parenteral 100-200 Gm	102	4.8	5.3-4.1
L F	37	3-6	26	4.2	4.7-3.8	Parenteral 100-300 Gm and oral liver 1-2 times weekly	2	4.1	4.7-3.6
R H	45	1-4	36	4.3	4.9-3.4	Parenteral 67-167 Gm	102	4.0	4.7-3.6
B L	31	4-8	30	4.4	4.7-4.2	Liver 1/2-1 lb daily	29	4.1	5.0-3.5
H E	49	4	27	4.2	4.4-3.8	Parenteral 60-100 Gm and ventriculin 10-20 Gm or liver 1 lb daily	77	4.4	5.1-3.5
G P	50	2-6	44	4.1	4.9-3.6	Parenteral 27-100 Gm	47	4.3	5.1-3.7
D M	46	1-4	25	4.3	4.9-4.0	Parenteral 100-700 Gm	61	4.0	4.8-3.2
J T	48	3-6	62	4.4	5.0-4.0	Ventriculin 10-40 Gm	81	3.8	5.0-2.3
H Z	44	1-6	97	4.4	4.6-3.8	Liver ext hemoglobin mixture (oral) 7 Gm	1	4.5	4.9-4.0
H I	65	4-6	6	4.2	4.6-3.9	Parenteral 40-334 Gm	41	3.8	4.9-2
M C	48	1-6	36	4.4	4.8-3.8				

\* Doses of parenteral and oral liver extracts expressed in grams of liver from which the material was derived; ventriculin in grams of desiccated material taken.

to thirteen patients with pernicious anemia, the authors concluded<sup>6</sup> that "the oral dosage requirement of autolyzed liver approached the intramuscular requirement of other liver preparations." That antianemic potency might be influenced by autolysis was further suggested by the observations of Wills.<sup>7</sup> She found that whereas ordinary yeast was inert in treating cases of tropical macrocytic anemia, autolyzed yeast equaled liver in its efficacy. Subsequently Strauss and Castle<sup>8</sup> were able to produce typical reticulocyte responses and remissions in addisonian anemia after an autolyzed yeast preparation had been incubated with normal gastric juice.

5. Herron W F and McElroy W S. Autolyzed Liver Therapy in Pernicious Anemia. Science 76:127 (Aug 5) 1932.

6. Herron W F and McElroy W S. The Use of Autolyzed Liver in the Treatment of Pernicious Anemia. A Preliminary Report. J A M A 100:1084 (April 8) 1933.

7. Wills Lucy. Treatment of Pernicious Anemia of Pregnancy and Tropical Anemia with Special Reference to Yeast Extract as Curative Agent. Brit M J 1:1059 (June 20) 1931.

8. Straus M B and Castle W B. Nature of Extrinsic Factor of Deficiency State in Pernicious Anemia and in Related Macrocytic Anemias. Activation of Yeast Derivatives with Normal Gastric Juice. New England J Med 207:33 (July 14) 1932.



On the other hand, Castle and Strauss<sup>9</sup> were not able to substantiate the claims for the potency of autolyzed liver and autolyzed liver concentrates made by McEllroy and Herron<sup>6</sup>. A threefold gain in potency could not be demonstrated and it was shown that concentrates of autolyzed liver were less active than the amounts of liver from which they were derived. With these results, the observations recorded in this report are in complete agreement.

Nevertheless the question still remains whether autolyzed liver concentrate is a useful preparation for the treatment of pernicious anemia and also the important question whether the concentrate of autolyzed liver, which is essentially a liver extract, is more or less potent than other extracts prepared without preliminary autolysis. Data bearing on these considerations are presented in this report.

#### CLINICAL DATA

The therapeutic potency of autolyzed liver concentrate-Squibb (N N R)<sup>10</sup> has been studied for a period of two years in the wards and in the hematology clinic of the New Haven Hospital.

**Initial Treatment**—The blood response to the administration of autolyzed liver concentrate in a case of pernicious anemia is illustrated in chart 1. The preliminary submaximal test of gastrectomized pig's liver,<sup>11</sup> irrelevant to the purpose of this report, does not according to the principles of Minot<sup>12</sup>

weighed, of autolyzed liver concentrate provoked a reticulocyte peak which was slightly higher than standard<sup>14</sup> for adequate therapy. That this was a maximal response was further verified by the absence of a sec-

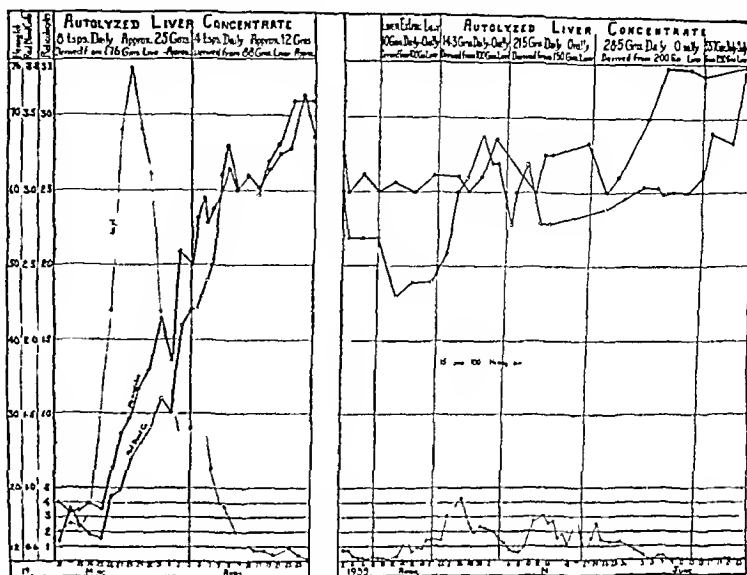


Chart 3—Studies on the potency of autolyzed liver concentrate in a patient in two relapses

ondary reticulocytosis when 30 Gm. daily of oral liver extract-Lilly derived from 300 Gm. of liver was administered.

The experiment graphically outlined in chart 2 indicates according to the principles formulated by Minot<sup>12</sup> and by Dameshek and Castle<sup>13</sup> that autolyzed liver concentrate derived from 100 Gm. of liver is more potent than liver extract-Lilly derived from the same amount of liver. The third reticulocyte peak obtained when 285 Gm. of autolyzed liver concentrate was administered, suggests that 143 Gm. of autolyzed liver concentrate was less than the maximal dose.

The results of blood studies of a patient in two relapses are given in chart 3. On the first admission the patient received 8 teaspoonfuls daily of autolyzed liver concentrate as a result of which a reticulocyte level of 33 per cent was attained on the eighth day of treatment. For the initial counts averaging 0.76 million red cells per cubic millimeter, this peak is lower than that expected according to the averages of Riddle<sup>14</sup>. This suggests that the dose of autolyzed liver concentrate might have been submaximal. On the other hand Bethel<sup>15</sup> has shown that in some instances in which a more sustained reticulocyte response is obtained the maximal reticulocyte percentage is usually appreciably less than would have been expected on the basis of the initial red blood cell count. To provide a quantitative basis for comparing these curves he devised a method of measuring the total reticulocyte response and constructed a formula for the expected response. In the case under discussion the duration of the reticulocytosis was twenty-one days. By means of planimeter measurements made according to the method of Bethel, the area of the reticulocyte response was 100.1 sq. cm. This is appreciably better than the theoretical expected figure for adequate treatment, which is 75 sq. cm. for

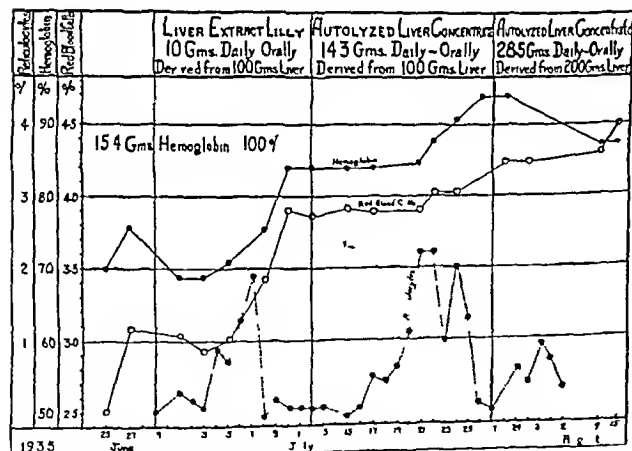


Chart 2—Assay of autolyzed liver concentrate. The reticulocyte curves indicate that the product is more potent than liver extract-Lilly and that the dose necessary to cause a maximal response is greater than 143 Gm. daily.

and of Dameshek and Castle<sup>13</sup> validate the subsequent assay of autolyzed liver concentrate. It is to be noted that daily administration of 285 Gm., accurately

9 Castle W B and Strauss M B. Effect of Autolysis on Potency of Liver in Treatment of Pernicious Anemia. *J A M A* 104: 798 (March 9) 1935.

10 Patent application serial number 620,301. Furnished gratis in part by E. R. Squibb & Sons, New York, otherwise purchased in the open market.

11 Goodman L, Geiger A J and Clahorn L N. Antianemia Potency of Liver After Gastrectomy, in *Savine Proc Soc Exper Biol & Med* 32: 810 (March) 1935.

12 Minot G R. The Interpretation of Reticulocyte Responses in Pernicious Anemia. *Tr A Am Physicians* 49: 287, 1934.

13 Dameshek William and Castle W B. Assay of Commercial Extracts of Liver for Parenteral Use in Pernicious Anemia. Successive Reticulocyte Responses in the Same Patient. *J A M A* 103: 802 (Sept 15) 1933.

14 Riddle M C. Pernicious Anemia. Blood Regeneration During Early Remission. *Arch Int Med* 46: 417 (Sept) 1930.

15 Bethel F H. The Relation Between the Total Reticulocyte Production and the Degree of Bone Marrow Involvement in Pernicious Anemia. *Am J M Sc* 188: 476 (Oct) 1934.

oral liver and 97 sq cm for ventriculin. Furthermore, the gain of 284 million red blood cells in approximately one month was greater than the average increase of 248 million recorded by Minot and Murphy<sup>16</sup> for their cases starting at similar levels. From these facts it seems highly probable that the therapy had been maximal.

In the second relapse the administration of autolyzed liver concentrate derived from 100 Gm of liver provoked a greater reticulocytosis than resulted from liver extract-Lilly obtained from the same amount of fresh liver. A third increase in the percentage of reticulocytes occurred when autolyzed liver concentrate from 150 Gm of liver was given. The significance of the small peak noted on the third day after the administration of autolyzed liver derived from 200 Gm of liver is uncertain. The experiments in this case indicate again that autolyzed liver concentrate is more effective than liver extract-Lilly and that the maximal dose of the former lies between 21.5 Gm and 28.5 Gm, or the amount derived from between 150 and 200 Gm of liver.

The gain in red blood cells following initial treatment with autolyzed liver concentrate in two cases of pernicious anemia in relapse is delineated in chart 4.

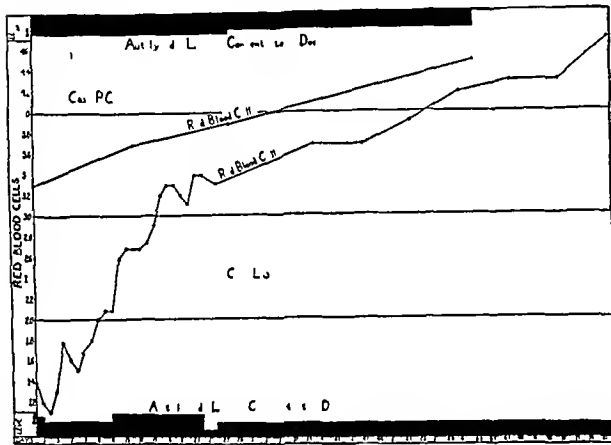


Chart 4—The gain in red blood cells following initial treatment with autolyzed liver concentrate in two cases of pernicious anemia in relapse.

**Maintenance Treatment**—The results of the maintenance treatment of patients with addisonian anemia are summarized in the accompanying table. In many of the cases it was possible to introduce control periods in which other forms of therapy of recognized efficacy were administered.

After changing from one treatment to another, the blood counts for a period of three weeks were discarded in order to allow for the carry-over effect of storage of active material. From the table it is evident that maintenance of the red blood count with autolyzed liver concentrate is on the whole satisfactory as compared with other types of treatment. It is noteworthy that the mean maintenance level of the red blood cell counts for all forms of treatment is slightly lower than the values that have been emphasized as the goal of adequate maintenance treatment. In our experience this is due in most instances to spontaneous fluctuations, which are not influenced by any therapy and occur in many patients with pernicious anemia. Innumerable attempts have been made to interrupt the course of these spontaneous variations by the exhibition of massive doses of parenteral liver extract—as much as the amount derived

from 700 Gm of liver weekly—without success. In other instances, specific therapy has been stopped for periods as long as six months without essential change in the average level of the red blood cell count or in the

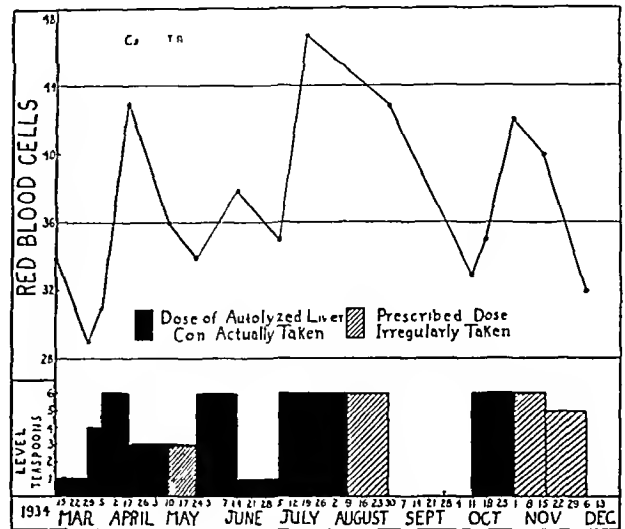


Chart 5—The effect of intermittent treatment with autolyzed liver concentrate on the red blood cell count of a patient with pernicious anemia.

symptoms. That this is not true for all cases of pernicious anemia is strikingly illustrated in chart 5. In this case, which has particular value in demonstrating the efficacy of treatment, the red blood count and symptoms followed very closely the amount of autolyzed liver concentrate taken. It is important, then, in evaluating any form of maintenance treatment that the observations should extend over a long period of time, include a series of patients and, if possible, be controlled by other types of therapy. An example of extended maintenance with the form of treatment under consideration is given in chart 6.

The average maintenance dose of autolyzed liver concentrate was found to be 3 level teaspoonfuls daily with a range of from 1 to 8 teaspoonfuls. In general, doses larger than average were necessary for the aged and those with extensive neurologic disturbances. In some

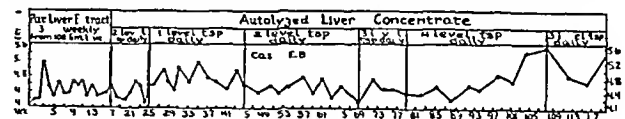


Chart 6—Maintenance treatment of a case of pernicious anemia with autolyzed liver concentrate.

of these cases, oral therapy in any form was economically unpractical. In a number of cases, repeated allergic reactions to the parenteral administration of liver extract made oral treatment obligatory.

The effect of treatment with autolyzed liver concentrate on the symptoms of pernicious anemia, initially and thereafter, was commensurate with that obtained from other forms of therapy.

#### SUMMARY

1. Autolyzed liver concentrate is effective in the initial and maintenance treatment of addisonian anemia.
2. Autolyzed liver concentrate is more potent than liver extract-Lilly derived from the same amounts of liver.

3 In the initial treatment of pernicious anemia, maximal effects have been obtained from a daily dose of autolyzed liver concentrate derived from between 150 and 200 Gm of liver

4 For maintenance treatment a dose of from 1 to 8 teaspoonfuls daily, on the average 3 teaspoonfuls, has been found adequate

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## THE SUBCUTANEOUS INJECTION OF ALCOHOL FOR PRURITUS ANI

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In the majority of cases of pruritus ani, the cause of the distressing itching is found to be associated with some variety of local lesion and the treatment is determined by the specific nature of this cause. There are, however, a considerable number of cases of intractable, severe pruritus in which no causative factor can be discovered and which have been variously designated as "essential" or "idiopathic." The extremely varied types of treatment suggested and the large number of remedies employed are evidence of the difficulties in securing relief in these cases. The use of alcohol by subcutaneous injection first introduced by Stone<sup>1</sup> and later employed by Buie<sup>2</sup> in a modified form, has been found to be a particularly effective means of treatment. The employment of this method by a somewhat modified technic in a series of twenty-two patients observed for a period of a year or more is presented in this report.

The clinical features presented by this group of patients were more or less characteristic. The itching has usually been of long duration and fairly constant. It is often intense, especially at night. Sleep is inadequate and, with the inability to secure sufficient rest, the general health may be impaired. Scratching may be so marked during sleep that the skin bleeds. Many and varied remedies have been tried with only partial or temporary relief. It is because of the great distress these patients suffer that a more radical measure, such as the method to be described, becomes necessary. Either no pathologic change was found in the terminal colon or rectum or, when such had been present, appropriate measures were undertaken for their removal without appreciable relief from the itching. No etiologic factor, either general or local, could be found to account for the intractable pruritus.

As a rule, both gross and microscopic changes were found on examination of the skin about the anus. These changes probably occur as a result of scratching, followed by bacterial invasion of the tissues and, to some extent, from previous treatment. The skin is usually a grayish white and markedly thickened. In some it is tough and of a leathery consistency, in others it is thick and soggy, presenting an appearance described as "parboiled." There may be numerous reddened and excoriated areas and even pustules with excessive secre-

tion and moisture. The microscopic appearance, according to Crawford,<sup>3</sup> is essentially that of a low grade inflammatory process with proliferative changes. He found marked thickening of the surface epithelium with hyperkeratinization, and dilatation of the superficial blood vessels and lymphatics, with extensive infiltration, usually of small lymphocytes. The deeper layer of the cutis shows extensive fibrosis, while the upper layer may be edematous. The cutaneous nerves show no evidence of involvement. These observations are in agreement with those reported by Montgomery.<sup>4</sup>

An analysis of the methods of treatment that have been successful in relieving these cases of intractable pruritus indicates that they all attempt to accomplish their effect either by severance, anesthesia or destruction of the peripheral sensory nerve filaments immediately beneath the involved skin. The effect of alcohol in destroying nerve fibers with which it comes in contact is well known. In our opinion the most effective method has been that suggested by Buie. Briefly, this method may be described as follows. Under sacral anesthesia, with the patient prepared as for the ordinary rectal operation, 40 per cent alcohol is injected subcutaneously, exactly as a solution is used for local infiltrative anesthesia. Careful and detailed postoperative care is administered while the patient remains in the hospital for two or three weeks and under treatment for a period up to two months. Although sloughing of some of the superficial tissues occurs in a large proportion of cases, it may be kept down to a small area without subsequent ill effect. While results have been extremely good, there are certain inherent difficulties in carrying out this procedure. Chief among these has been the difficulty in providing from two to three weeks of hospitalization, with what amounts to almost private nursing care, for the majority of patients. With this in mind, we have employed a method, based on both the foregoing technic and that originally suggested by Stone, by which the alcohol is injected in several stages under local anesthesia and without hospitalization.

### METHOD OF TREATMENT

The patient is placed in the Sims position and the perianal area is prepared as for any rectal operation under local anesthesia. Only a segment of perianal skin, either one fourth or one fifth of the entire area, is selected for treatment at one time. Just beyond the outer edge of the involved skin, which can usually be outlined by its appearance, a small wheal is raised by the injection of procaine hydrochloride. Through this wheal, a needle of 20 or 22 gage and from 2 to 3 inches long is passed under the skin and a 2 per cent solution of procaine hydrochloride is injected subcutaneously, as thin a layer of fluid as possible being made, with little or no distention of the skin. In this manner and without withdrawal of the needle, the fan-shaped segment selected is injected from the border of normal skin to the mucocutaneous margin. From 3 to 5 cc of procaine hydrochloride solution is required and it is advisable to inject it under an area slightly greater than that in which the alcohol is placed. The needle is next carried near the outer limits of the anesthetized area, a second syringe is attached and 70 per cent ethyl

From the Department of Proctology, Surgical Service of Dr. Thomas A. Shallow, Jefferson Medical College Hospital.

1 Stone, H. B. Treatment for Pruritus Ani. *Bull. Johns Hopkins Hosp.* 25: 242-243 (Aug.) 1916.

2 Buie, L. A. Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus. Philadelphia: W. B. Saunders Company, 1931.

3 Crawford, B. L. Personal communication to the authors.

4 Montgomery, Hamilton, quoted by Buie.

5 Ball, C. B. The Rectum, Its Diseases and Developmental Defects. London: H. Froude, Hodder and Stoughton, 1908. Yeomans, F. C., Gorsch, R. V., and Mathesheimer, J. L. Benacol in the Treatment of Pruritus Ani (Preliminary Report). *Tr. Am. Proct. Soc.* 1931, pp. 24-29.

alcohol is injected as the needle is withdrawn through the tissues. By moving the needle back and forth, one can distribute the alcohol in such a manner as to distend the skin uniformly and without too much tension. The folded, very irregular, surface of the skin about the anus renders it difficult in many instances to keep the injection at a uniform depth and concentration. The quantity of alcohol used is equal to that of the procaine hydrochloride solution employed in the area. A mild antiseptic dressing is applied and the patient is allowed to return home. If the procaine hydrochloride has been properly placed, very little discomfort is experienced. The patient is advised to carry out adequate cleansing of the area to apply hot saline compresses two or three times daily for several days and to keep a suitable dressing over the area. The same procedure is then repeated at intervals of from four to seven days until the entire perianal skin has been so treated. Depending on the area injected at any one time, from four to six such treatments are necessary requiring a total quantity of from 15 to 20 cc. of alcohol.

Several precautions should be observed in carrying out this plan of treatment. The alcohol must be placed in the relatively loose subcutaneous tissue. If it is injected intradermally a slough is certain to result. Care must be taken also to avoid injecting it deep enough to involve the anal sphincters. In the male, the membranous urethra is not far beneath the skin, and the alcohol must be placed superficial to this structure to avoid serious injury. Too great a quantity should not be injected under a small area. This is especially likely to occur under the creased skin between the folds. Excision of tissue is not to be done at the same time as the injection or an indolent wound will result which may require weeks to heal.

The only complication encountered was some slight sloughing of tissue, which occurred in six of the twenty-two patients treated. This was evident early by the formation of a small abscess associated with the usual signs and discomfort and followed later by a small ulcer with a necrotic base. In only one instance was it larger than the wound which would result from the removal of an external skin tag. Except for the slight discharge, no discomfort was experienced as a rule and satisfactory healing took place in from three to four weeks. No special measures were employed other than those ordinarily used in the treatment of any open wound in this area.

#### SUMMARY OF CASES TREATED

The method as outlined was carried out in twenty-two patients, all of whom were observed for at least one year following the treatment. Of the group thirteen were males and nine were females, with an average age of 43 years. Symptoms had been present for periods varying from six months to seven years, the average duration being two and three-fourths years. In all of them any pathologic condition present at the initial examination which was regarded as a possible cause of the pruritus was removed or corrected as far as possible. The present treatment was not undertaken until after this had been done without relief of symptoms and until after the ordinary measures had failed. As stated before, most cases of anal pruritus will be relieved by simple measures or after the removal of associated pathologic conditions. Alcohol was not injected as a routine as the patients presented themselves but after we felt that we were dealing with an intractable type of itching.

The results have been very satisfactory. Of the twenty-two patients sixteen experienced complete relief from all itching and have remained so for a year or more, four were made comfortable but were not entirely relieved. Occasional slight itching persisted, but it was reported as not being very distressing. Two cases were regarded as failures. Although there was relief for several weeks the itching returned as intensely as before. In one of these, treatment was repeated with the same result. A very striking feature observed in many cases was the improvement in the appearance of the anal skin. Instead of its tough, leathery surface often badly excoriated the skin became soft and smooth closely approximating its normal state. A microscopic study of the skin was not made after treatment. The development of a slough, which occurred in six of the cases, did not influence the ultimate outcome and, in some instances in which

Summary of Cases Treated

Patient	Age	Sex	Duration of Symptoms	Associated Disorder Treated Before Injection	Number of Injections	Slough	Freedom from Itching
1	36	♂	3 yrs	None	5	0	Not complete
2	53	♀	2 yrs	Burn caused by cauterized solution of creol	6	0	Complete
3	40	♂	2 yrs	Fissure excised	4	0	Complete
4	35	♀	3 yrs	None	3	1	Complete
5	54	♂	1 yr	None	4	0	Complete
6	44	♀	3 yrs	Injection of hemorrhoids	3	0	Complete
7	27	♀	6 mos	None	2	0	Complete
8	31	♂	7 yrs	None	4	0	Complete
9	30	♀	1 yr	None	4	0	Complete
10	36	♀	3 yrs	Fissure excised	3	0	Complete
11	29	♀	4½ yrs	Hemorrhoidectomy	4	0	Complete
12	47	♀	1 yr	Injection of hemorrhoids	3	1	Not complete
13	35	♂	2½ yrs	Injection of hemorrhoids	4	1	Complete
14	40	♀	1 yr	Injection of hemorrhoids	4	0	Complete
15	50	♂	2 yrs	None	3	0	Not complete
16	40	♂	1 yr	None	3	0	None
17	30	♂	5 yrs	None	5	1	None
18	45	♂	2 yrs	Skin tags excised	3	1	Complete
19	57	♂	6 mos	Fissure excised	0	0	Complete
20	60	♂	1 yr	Hemorrhoidectomy	2	0	Complete
21	40	♂	3 yrs	None	4	0	Not complete
22	40	♂	1 yr	Possible allergic origin	4	2	Complete

it occurred, the results were probably better because of the greater fibrosis. No other complication was encountered.

#### CONCLUSIONS

1 There are a number of patients with severe intractable anal pruritus in which no causative factor can be demonstrated and in whom the employment of ordinary methods of treatment are not effective. The clinical features of this type are more or less characteristic.

2 Seventy per cent alcohol can be injected subcutaneously in such cases, under one segment of perianal skin at a time, and after preliminary anesthesia with an equal amount of procaine hydrochloride, for the purpose of destroying superficial nerve filaments. Hospitalization is not required.

3 Twenty-two patients observed for a year or more were treated by this method. Sixteen secured complete relief, four were made comfortable but not entirely free from itching and two were classed as failures, relief lasting for a short period only.

4 The method is effective when carried out with certain precautions. No serious complications were encountered.

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## THE USE OF LARGE VOLUME INTRAVENOUS INJECTIONS

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The literature on large volume intravenous injections is so voluminous, the statements and recommendations involved in the selection of proper fluid, the dose, the rate of injection, the temperature of the fluid and the cause of reactions are so contradictory that many of the medical profession are greatly confused. The average man under these circumstances would prefer to go according to the usual practice rather than according to what may eventually prove to be the ideal practice. Unfortunately he has no means of knowing what is the usual practice of other than his immediate confreres, who may be just as much at sea as he is. Because of my connection with a laboratory making and distributing intravenous solutions, I am in an unusually advantageous position to learn what is being used in various sections of the country and also to learn what points most often confuse the practicing physician. An attempt is made to give "middle of the road" answers to the questions most frequently asked of our staff. Every statement made (or that could be made) will be in direct disagreement with the thought or writings of some man who has wide experience in this field.

### SOLUTIONS USED IN VARIOUS SECTIONS OF THIS COUNTRY

Table 1 gives the percentage of certain solutions to all solutions used in various localities according to the distribution figures of the Cutter Laboratories. It is subject to certain errors. For instance, the figures largely represent sales to dealers, and the dealers in a particular territory might be heavily stocked in one type of solution at the first of the period and very low in stock at the end of the period, or vice versa. It is

TABLE 1—Distribution of Various Solutions in Different Regions of the United States

Region	Dextrose 5% in Salt Solution	Dextrose 10% in Water	Dextrose 10% in Water	Dextrose 10% in Water	Ringer's (Also Dextrose in Ringer's Solution)	Lactate Ringer's (Hartmann's)	All Other Solutions
Northeast	62%	3%	16%	1%	18%		
Southeast	26%	1%	14%	4%	42%	1%	12%
North midwest	44%	6%	23%	5%	18%	1%	3%
South midwest	31%	5%	35%	7%	18%	4%	
Northwest	43%	9%	24%	11%	11%	2%	
Southwest	14%	4%	24%	38%	18%	2%	
Average	36%	5%	23%	11%	21%	1%	2%

Percentages represent the proportion of a certain type of solution to the total of all types of solutions used in that area. Blank spaces represent less than 0.5 per cent.

not believed, however, that these errors are great. It probably shows the picture more accurately than would figures based on a questionnaire sent to various physicians and hospitals.

The table is interesting in that it shows that preferences differ markedly. For instance, dextrose 5 per cent in physiologic solution of sodium chloride is called for in the Northeast more than four times as frequently as it is in the Southwest.

Dextrose in salt solution seems to be quite generally preferred to dextrose in water. There has been a

definite decline in the use of physiologic solution of sodium chloride and now it remains the most popular choice in only one region—the Southeast.

### PRACTICAL POINTS INVOLVED IN THE USE OF LARGE VOLUME INTRAVENOUS INJECTIONS

Intravenous injection of large quantities of fluids should be used only when simpler methods of administration are inadequate or too slow. On the other hand, this operation has now been so simplified and reactions so common in the past have been so effectively reduced

TABLE 2—Caloric Requirement With and Without Fever

Calories Required 24 Hours			Calories Required 24 Hours		
Weight (Pounds)	Without Fever	With Fever	Weight (Pounds)	Without Fever	With Fever
10	150	180	100	1500	1800
15	225	270	110	1650	1980
20	300	360	120	1800	2160
25	375	450	130	1950	2340
30	450	540	140	2100	2520
40	600	720	150	2250	2700
50	750	900	160	2400	2880
60	900	1080	170	2550	3060
70	1050	1260	180	2700	3240
80	1200	1440	190	2850	3420
90	1350	1620	200	3000	3600

that there can be no excuse for temporizing with hypodermoclysis or rectal instillations when there is any question of their adequacy. Twice the volume given intravenously twelve hours too late may not relieve a condition which half the volume given twelve hours "too early" would have prevented.

**Selection of Solution—1** When fluids are needed, 5 per cent dextrose in physiologic solution of sodium chloride is most often used.

**2** When excessive sweating, vomiting, diarrhea or exudation (e. g. burns) accompany the fluid loss, 5 per cent dextrose in physiologic solution of sodium chloride is used to replace salt loss.

**3** When nourishment is needed, 10 per cent dextrose in physiologic solution of sodium chloride or in water has preference.

**4** When acidosis is threatened or present, 10 per cent dextrose in salt solution or in water, or in lactate-Ringer's solution (Hartmann's solution) is used.

**5** In treating poisoning with soluble diffusible poisons (includes most of the common poisons) several liters of 5 per cent dextrose in water is used to wash the blood after the usual emergency procedures.

**6** In hypoglycemia (insulin shock) 10 per cent dextrose in physiologic solution of sodium chloride or in water is used.

**7** In diabetic coma, 10 per cent dextrose in physiologic solution of sodium chloride or in water is used. (One unit of insulin per gram of dextrose may be mixed in the intravenous flask but insulin is much more dependable when given subcutaneously. Each 10 cc of 10 per cent dextrose contains 1 Gm of dextrose.)

Dextrose 5 per cent is approximately isotonic with blood and is passed off as carbon dioxide through the lungs, placing little or no load on the kidneys. It is harmless when not needed, but usually when there is large fluid (or salt) loss there is an accompanying need for fuel, hence the almost universal inclusion of dextrose in solutions for mass intravenous injection.

Dextrose in Ringer's solution (a blood-mimicking solution containing potassium and calcium chlorides in addition to sodium chloride) is occasionally substituted



for dextrose in physiologic solution of sodium chloride wherever mentioned. This also applies to dextrose in lactate Ringer's solution (Hartmann's solution—Ringer's solution plus sodium lactate, designed to compensate for loss of bicarbonate).

**Dose**—The initial dose is usually 1,000 cc for adults. For children the dose is reduced in proportion to weight. Subsequent dosage should be sufficient to accomplish the purpose.<sup>1</sup> For fluid or salt deficiency sufficient should be given to maintain at least 1,000 cc (34 ounces) of urine daily.

After the original fluid loss has been made up, i. e., the urine is dilute (of low specific gravity), further fluid injection should equal the total fluid output. For practical purposes one may calculate the fluid output as follows:

Consider the loss through lungs, skin and normal defecation as 1,000 cc daily,<sup>2</sup> if there is increased metabolism, excessive perspiration, hemorrhage, vomiting, exudation or diarrhea, estimate these losses and add the estimated or preferably measured urinary output. Their sum is the total fluid output. Example:

Lungs, skin and defecation (considered) 1,000 cc, urine measured 1,650 cc, vomitus estimated 300 cc, total fluid output 2,950 cc. Dose for coming twenty-four hours 2,950 cc or, in round numbers, 3,000 cc.

This method of handling dosage will go a long way toward avoiding edema (including pulmonary edema), for which one should always be on guard.

For nutrition an adult weighing 140 pounds (63.5 Kg) requires at least 5,000 cc of 10 per cent dextrose solution daily if this is the only source of nourishment. (This is based on 15 calories per pound resting requirement, 18 calories with fever [33 and 40 calories per kilogram respectively]. Dextrose yields 4.10 calories per gram, 1,000 cc of 10 per cent dextrose contains 100 Gm of dextrose, which yields 410 calories.)

TABLE 3—Caloric Values of the More Commonly Used Dextrose Solutions

Volume Injected Cc	5% Dextrose Calories	10% Dextrose Calories	20% Dextrose Calories
10	2	4	8
50	10	20	41
100	20.5	41	82
500	102.5	205	410
1 000	205	410	820
1 500	307.5	615	1 230
2 000	410	820	1 640
2 500	512.5	1 025	2 050
3 000	615	1 230	2 460
3 500	717.5	1 435	2 870
4 000	820	1 640	3 280
4 500	922.5	1 845	3 690
5 000	1 025	2 050	4 100
5 500	1 127.5	2 255	4 510
6 000	1 230	2 460	4 920
6 500	1 332.5	2 665	5 330
7 000	1 435	2 870	5 740
7 500	1 537.5	3 075	6 150
8 000	1 640	3 280	6 560

#### EXPLANATION OF THE USE OF TABLES 2, 3 AND 4

Tables 2, 3 and 4 are designed to help in the determination of the caloric need, the selection of a suitable dextrose concentration and volume and appropriate speed of injection. Weights are expressed in pounds rather than kilograms because metric scales are not

generally available, moreover, the weight is generally estimated or taken from the patient's statement and, whether they should or should not many clinicians have difficulty in converting pounds to kilograms. At best it means another calculation. Example:

A patient without fever, estimated to weigh 140 pounds (63.5 Kg), is unable to take nourishment by other means than intravenous injection. Using table 2 or the formula of caloric requirement (15 calories per pound daily, 18 calories if the patient has fever) we find that the patient needs 2,100 calories

TABLE 4—Rate of Flow Equivalents

Cc per Minute	Cc per Hour	Cc per 24 Hours	Cc per Minute	Cc per Hour	Cc per 24 Hours
0.35	21	500	3.5	210	5 040
0.7	42	1 000	4.2	252	6 000
1.1	63	1 500	4.5	270	6 480
1.4	84	2 000	4.9	294	7 000
1.7	104	2 500	5.2	312	7 500
2.1	125	3 000	5.6	336	8 000
2.4	146	3 500	5.8	350	8 400
2.8	167	4 000	12.5	750	18 000
3.1	188	4 500	16.7	1 000	24 000
3.5	208	5 000			

daily. Table 3 shows the nearest figure to this to be 2,050 calories, which is supplied by 5,000 cc of 10 per cent solution or 2,500 cc of 20 per cent. Since 10 per cent dextrose is more nearly isotonic and yields the caloric requirement in an amount that is entirely practical to administer each day, it is the solution of choice. Table 4 shows that continuous phlebotomy at the rate of 3.5 cc per minute or 208 cc per hour will use 5,000 cc a day. If a more rapid rate of injection is desired, 8.3 cc a minute will yield 500 cc an hour. In adjusting the rate per minute it will be found that the average dextrose solution will come through the average drip meter at about 12 drops per cubic centimeter rather than 16 drops per cubic centimeter, which is the factor commonly used.

**Rate of Injection**—Dextrose solutions should not be injected more rapidly than 0.35 Gm per pound of body weight per hour, as above this rate sugar is excreted in the urine of a normal adult.<sup>3</sup> However, one could inject 10 per cent dextrose at the rate of 500 cc an hour and still be within this limit with a man of average weight.

It has been rather general practice to inject a liter of solution in from thirty minutes to an hour. Recently several have taken violent exception to this practice and have recommended up to eight hours for the injection of a liter. Those who prefer more rapid injection say that continuous phlebotomy is inconvenient and not practical, while those advocating slow injection believe that the rapid method may cause "speed shock." The man who selects a rate of flow of about 500 cc an hour for adults when there is indication neither for particularly slow nor for particularly rapid injection is treading middle ground. As a rule, hypertonic solutions (e. g. from 2 to 5 per cent saline or from 10 to 20 per cent dextrose) should be given more slowly than isotonic solutions (e. g. 5 per cent dextrose or physiologic solution of sodium chloride).

In shock, one should inject at the rate of from 20 to 40 cc per minute, constantly watching the pulse and blood pressure. When these improve to within safe limits the speed of injection should be reduced.

**Temperature of Injected Fluid**—The temperature of the solution in the flask may range between 75 and 120 F, 112 being a good average. When the patient's temperature is high, relatively cool solutions should be used. When the patient's temperature is abnormally

<sup>1</sup> Fantus, Bernard. The Prescribing of Dextrose Phlebotomy. *J. A. M. A.* 102: 2165 (June 30) 1934.

<sup>2</sup> F. A. Collier and W. G. Maddock (Dehydration Attendant on Surgical Operations). *J. A. M. A.* 99: 875 (Sept. 10) 1932. Show that the incalculable loss through skin and lungs during operation and for the first four hours following operation will average 1,000 cc and may be much more.

<sup>3</sup> Wilder, R. M. and Sansum, W. D. Glucose Tolerance. *Arch. Int. Med.* 19: 311 (Feb.) 1917.

low, solutions between 112 and 120 should be used, e g, shock. When the injections are given slowly, however, the temperature of the solution is probably of minor importance.

#### SUMMARY

Preferences for the solutions more commonly used in large volumes intravenously vary in different sections of this country. Dextrose 5 per cent in physiologic solution of sodium chloride is most often used.

Nonoriginal suggestions and the tables will aid the physician who may be confused by the confusions of current literature in determining and carrying out good common sense intravenous practice.

Fourth and Parker streets

## DISLOCATIONS OF THE KNEE JOINT

WITH A REPORT OF A COMPLETE EXTERNAL LATERAL DISLOCATION

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AND

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The knee is probably more often the site of traumatic involvement than any other joint. Complete dislocations of the knee joint are extremely rare and occur less frequently than in any of the large joints of the body. Subluxations of the knee joint, however, are very common.

The records of many large hospitals fail to show a single case of a complete dislocation of the knee. According to Ritter<sup>1</sup> in 23,000 accident cases admitted to the Reconstruction Hospital in New York, only one dislocation of the knee was noted and that one was incomplete. Ritter also states that the records of the New York Post Graduate Hospital reveal but three

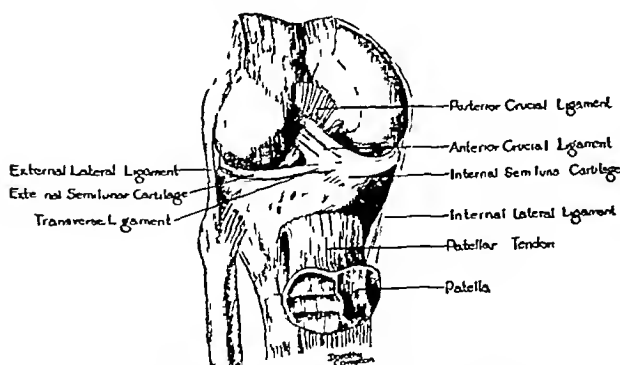


Fig 1—Important ligaments of the knee joint (Cunningham D J A Text Book of Anatomy, ed 4 New York William Wood & Co 1913)

cases. One was the result of a chronic infection and the other two were forward dislocations of traumatic origin. Ransohoff<sup>2</sup> states that in 1,000 dislocations in the General Hospital at Copenhagen there were only two dislocations of the knee joint.

In a total number of about 9,000 fractures and dislocations treated by the orthopedic service of the

Employees Hospital, there were six cases of complete dislocation of the knee joint. In four of these cases the knee was dislocated anteriorly,<sup>3</sup> in one case it was dislocated posteriorly and the sixth case was an external lateral dislocation of the knee joint, which is herewith being reported in detail.

#### ANATOMY

The bony landmarks of the knee are the patella, the internal and external condyles of the femur, the condyles and the tubercle of the tibia, and the head of the fibula. The soft part landmarks are the quadriceps tendon anteriorly and the hamstring muscles and tendons posteriorly. The bones entering into the formation of the joint are the condyles and the patellar surface of the femur above, the condyles and the spinous processes of the tibia below, and the patella anteriorly.

The stability and support of the knee are dependent on its various ligaments, of which there are two sets, the external and the internal (fig 1). The external ligaments are the most important and consist of the internal and external laterals, the quadriceps and its component muscles and tendons, the patella and patellar tendon anteriorly, and the oblique popliteal and arcuate popliteal ligaments posteriorly.

In addition to these, the capsular ligament entirely surrounds the joint. The two heads of the gastrocnemius and the tendon of the semimembranosus muscle reinforce the other structures posteriorly.

The internal set of ligaments consist chiefly of the anterior and posterior crucials. The anterior crucial ligament arises from the nonarticular fossa of the tibia anterior to the tibial spine and passes upward and outward and is inserted to the posterior medial aspect of the external condyle of the femur within the intercondylar notch. The function of this ligament, as can be seen from its location, is to prevent anterior dislocation of the tibia on the femur when the knee is in extension.

The posterior crucial ligament arises from the lateral surface of the anterior portion of the internal condyle of the femur and passes to the posterior intercondylar tubercle and fossa of the tibia. This ligament prevents posterior dislocation of the tibia on the femur.

The two semilunar cartilages rest on the condyles of the tibia. They are not attached to the condyles but to the capsule by their outer margins and to the intercondylar eminence and the crucial ligaments. They are connected medially by a variable transverse ligament.<sup>4</sup>

#### ETIOLOGY, TYPES AND CLASSIFICATION OF DISLOCATION AT THE KNEE

Dislocations of the knee may be complete or incomplete and may be caused by direct or indirect violence. Incomplete dislocations are more common. They are classified according to the relation of the upper end of the tibia to the lower end of the femur. The various types are as follows:

1 *Anterior Dislocation*—This is the most common type of dislocation at the knee, about 40 per cent of all knee joint dislocations being of this type.<sup>2</sup> Anterior dislocations occur when the knee is in full extension, either when direct violence is applied to the anterior lower end of the thigh, driving the femur backward,

From the orthopedic clinic Employees Hospital.  
1 Ritter H H Dislocation of the Knee Joint J Bone & Joint Surg 14 391 394 (April) 1932  
2 Ransohoff J Dislocations of the Knee Tr West S A December 1915

3 Key J A and Conwell H E The Management of Fractures Dislocations and Sprains St Louis C V Mosby Company 1934 pp 944 947

4 Sobotta Johannes Atlas of Human Anatomy edited by J I McMurrich New York G E Stechert & Co 1927

or when applied to the posterior upper end of the leg near the knee, driving the tibia forward. It may also occur by indirect violence, such as occurs when one is standing in a falling elevator.<sup>2</sup>

**2 Posterior Dislocations**—This type is second in frequency of occurrence, composing about 20 per cent of these dislocations.<sup>2</sup> Posterior dislocations occur while the knee is in flexion. Extreme direct violence received on the anterior upper end of the leg near the knee or on the posterior surface of the thigh near the knee usually causes this type of injury. It may also be caused by indirect violence, as occurs when one is running and steps into a hole, the leg being fixed and the weight of the whole body being thrown forward on the knee. In all posterior dislocations the posterior crucial ligament is ruptured.

**3 Lateral Dislocations**—These compose about 20 per cent of knee joint dislocations.<sup>2</sup> They are caused by forced adduction of the leg or, as happened in our case, the leg may be caught in a rotating wheel and

crucial may be torn. In posterior dislocations the posterior crucial is ruptured and the anterior may be also. The hamstring tendons, may be torn and are always unduly stretched in anterior dislocations.

In either anterior or posterior knee dislocations, all the ligaments of the knee may be torn, but usually portions of the lateral ligaments remain intact. There is usually an extensive laceration in the capsule and capsular ligament in any dislocation of the knee. A narrow tear in the capsule may necessitate an open reduction. Rupture of ligaments and tears in the capsule are usually more extensive and complete in lateral and medial dislocations. Usually all the important ligaments in these cases are ruptured, including the crucials, the laterals and the posterior ligaments. The patellar and quadriceps tendons are rarely ruptured.

Any type of dislocation may be compounded, and when this occurs it is a serious complication, especially in the anterior dislocations in which the lower end of the femur penetrates the popliteal space. Simultaneous

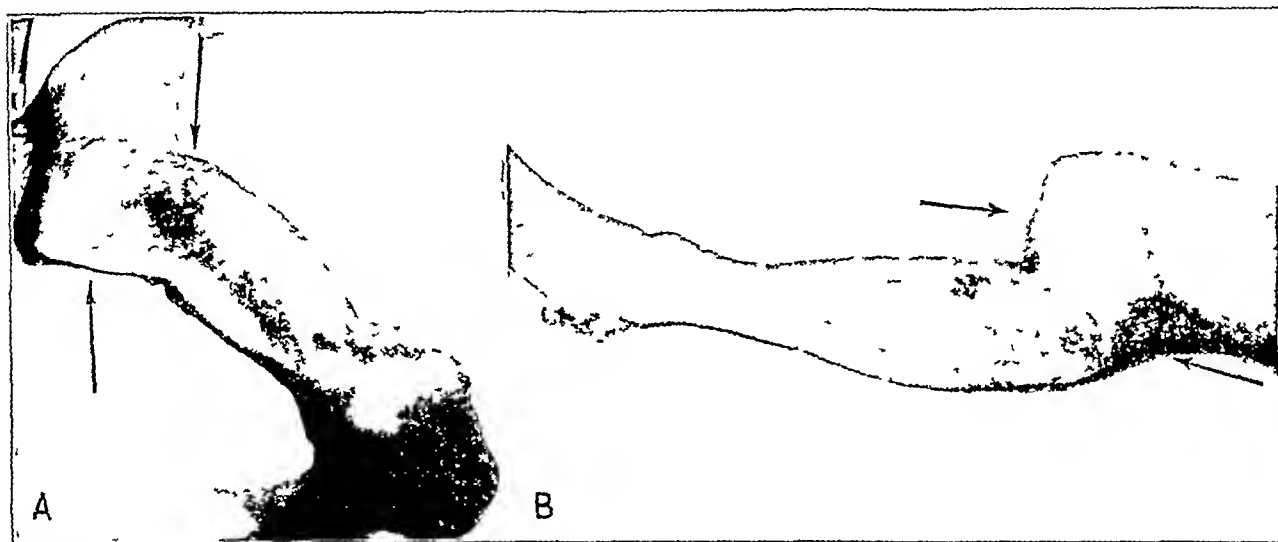


Fig. 2—A complete external lateral dislocation of the knee joint. Note the visibility of both condyles and the intercondylar notch of the femur. Also note the extreme degree of stretching of the hamstring muscle (B).

twisted on the thigh. It may also be caused by direct violence against the inner aspect of the leg high up or against the lower end of the thigh on the outer side.

**4 Medial Dislocations**—About 7 per cent of all cases are of this type.<sup>2</sup> The tibia is displaced medially by forced abduction of the leg or by direct violence against the external surface of the leg, high up, or against the inside of the thigh, low down.

**5 Rotary Dislocations**—This type of injury is rare. It is usually caused by the leg being caught in a rotating wheel and rotated about its long axis. There are two types, outward or inward, according to the direction of the toes.

#### PATHOLOGY

The pathologic conditions in dislocations of the knee vary according to the type of dislocation. Fractures are unusual in anterior and posterior dislocations, except for avulsion of the tibial spine. Lateral and medial dislocations are often accompanied by fractures, which may be of the internal or external condyles of the femur or tibia. The semilunar cartilages may be fractured or displaced, causing considerable difficulty in reduction. In anterior dislocations the anterior crucial ligament is always ruptured and the posterior

dislocation of the patella is extremely rare. One of our cases was accompanied by this unusual complication.

Injuries to the nerves and blood vessels in the region of the knee are not uncommon. Rupture of the popliteal artery may occur,<sup>5</sup> and gangrene may result. This is especially likely in anterior dislocations and is due to anatomic fixation of the popliteal artery.<sup>6</sup> It is possible, however, for only the intima to be injured, which may result in a delayed thrombosis and gangrene.

Aneurysms sometime develop following initial arterial injury. When a vessel is severed, the contusion and laceration of the periarticular soft parts are so great that collateral circulation is often prevented from taking place. Nerve injuries are not infrequent and may consist of a simple contusion or a complete severance of the sciatic nerve or its branches. Permanent nerve injury is rare.

#### DIAGNOSIS

The diagnosis of a complete dislocation of the knee joint is usually not difficult. In the presence of a history of extreme violence, severe pain and discomfort,

<sup>5</sup> Anderson, R. I. Dislocation of the Knee with Rupture of the Popliteal Artery and Vein. Report of a Case. *Virginia M. Monthly* 58: 120-123 (May) 1931.  
<sup>6</sup> Lipshutz, Benjamin. Injuries to Large Arteries Encountered in Civil Practice. *Surg. Gynec. & Obst.* 46: 62-71 (Jan.) 1928.

with inability to bear weight and a deformity of the knee and shortening of the extremity, one should immediately suspect a dislocation.

Roentgenograms usually prove the diagnosis. One should always look for complications. The dorsalis pedis and posterior tibial arteries should always be palpated. Evidences of nerve injury and its extent should always be looked for. A large mass in the popliteal space with an absence of pulsations in the dorsalis pedis and posterior popliteal arteries indicates a hematoma from a ruptured vessel and usually demands immediate exploration.<sup>5</sup>

Roentgenograms should be made before any treatment is instituted if the general condition of the patient permits and if there is no indication for immediate



Fig. 3—Complete external lateral dislocation of the knee joint with a chip fracture of the internal condyle of the tibia. Note the distance between the spine of the tibia and the intercondylar notch of the femur.

reduction. This will not only show the exact position of the dislocation but reveal any fractures that may be present.

#### TREATMENT

The patient's leg should be properly splinted as soon as he is seen. If shock is present this should be combated by the usual measures, certain cases, however, may demand immediate reduction if the circulation is temporarily embarrassed.

In uncomplicated cases, closed reduction should be done if possible. This is usually not difficult and can be easily accomplished by traction and pressure over the lower end of the femur with countertraction to the leg and upper end of the tibia in the opposite direction of displacement. Increasing the deformity is dangerous, as the vessels that are already on their maximum stretch may rupture. Continuous traction likewise should be avoided, as the ruptured ligaments may become permanently elongated.

Ether or gas anesthesia should be used if the patient's condition warrants a general anesthetic. Some cases

cannot be reduced by the closed method and require open reduction. A narrow tear in the joint capsule or an interposed semilunar cartilage is most often the cause of the irreducibility.<sup>8</sup> Immediate open reduction should be resorted to if closed reduction is impossible.

Compound dislocations should be reduced and the wound cleansed, debrided and sutured. A ruptured artery is a serious complication. As previously stated, when there is swelling in the popliteal space and an absence of pulsation in the dorsalis pedis and posterior tibial arteries, a ruptured popliteal artery should be suspected and exploration performed. Small openings in the artery may be sutured, but larger ones require ligation of the artery and vein whether the vein is ruptured or not. Even then gangrene may result and an amputation above the knee may be necessary.

When the dislocation is reduced, a plaster cast should be applied to extend from the base of the toes to include the hip, with the knee in slight flexion except in posterior dislocations, when the knee should be fully extended. Circulation of the foot should be closely observed. The cast should be cut immediately if circulation is impaired. In most cases prolonged immobilization should be carried out and this usually means from six to eight weeks. At the end of this time the cast is removed or bivalved and active motion and massage are carried out. The patient is then fitted with a brace (fig. 4A) which is attached to the shoe and has a detachable support about the waist with a lock joint at the knee, so constructed as to permit motion only when the patient flexes the knee. Weight bearing with crutches, physical therapy, active motion and hot baths should be continued over a long period of time.

Special attention should be given to the development of the quadriceps and hamstring muscles, especially the quadriceps. We feel that this is the most important factor in stabilizing the knee joint after extensive lacerations of the ligaments. We do not favor immediate open operation and attempt at repair of the crucial or other ligaments. We feel that this radical step is not justified in the face of results that we and many others have obtained by the closed reduction.

#### PROGNOSIS

The prognosis in dislocations of the knee is to life is good in uncomplicated cases. When complicated by rupture of the popliteal artery, gangrene occurs in from 35 to 40 per cent when ligation is done and in an even higher percentage when it is not done.<sup>5</sup> Compound dislocations of the knee are serious because of disturbance to the circulation and infection, which may result in death. Shock alone has caused death in these cases. The end functional result varies, but in uncomplicated cases, if early and proper treatment is carried out, there should result a painless, stable knee with moderate and sometimes full motion.

#### REPORT OF CASE

T. M., a white man, aged 57, 5 feet 4 inches in height (163 cm), admitted to the Employees Hospital, Nov. 1, 1934, stated that about one hour before admission he stepped into a hole about knee deep, at the bottom of which was a rotating sifting metal basket, similar to a rotating wheel. His foot was caught in the rotating basket and was twisted around, causing a severe injury to his left knee. On examination the patient was perfectly conscious with no evidence of any injury other than that of the left knee. He was not in severe shock. Examination of the left knee revealed a very striking deformity. Photographs of the dislocated knee (fig. 2) taken immediately follow

ing admission to the hospital are, so far as we know, the first ever to be published of a dislocation of this type

The width of the region of the left knee was twice that of the right. The left leg was 2 inches (5 cm) shorter than the right. The upper end of the tibia was completely lateral externally, to the articular surface of the lower end of the femur. The condyles of the femur and the intercondylar notch could easily be seen and palpated under the tightly stretched skin. Pulsations in the posterior tibial and dorsalis pedis arteries were normal, and there was no evidence of any disturbance of circulation in the foot. There was no compounding of the wound or other complications. There was every evidence of a complete external lateral dislocation of the knee joint.

Roentgenographic views were in accordance with the physical manifestations: that is a complete external lateral dislocation of the knee with an overlapping of about 2 inches and a small associated chip fracture of the internal condyle of the tibia (fig 3).

## COMMENT

According to Huber, Yaffee and Podlasky<sup>9</sup> Hey Groves advised operation and repair of the ligaments. Sir Robert Jones did not recommend any special treatment but emphasized prolonged immobilization. Meadows, quoted by Huber<sup>9</sup> cites a case in which he reduced a dislocation and applied an elastic bandage. The patient was discharged on the third day and was symptom free and walking in twenty days. This short convalescence must be unusual.

We do not believe in immediate open operation in view of the results obtained by us and many others. Weigel<sup>10</sup> reports the case of an anterior dislocation in which closed reduction was performed and the end results were excellent. Bennett, in discussing this case,



Fig 4—A type of brace used after the removal of the cast. Note that the brace is attached to the shoe and extends to the hip being supported by a leather band around the pelvis. There is a lock joint at the knee which prevents lateral motion but allows full flexion of the knee joint. B and C show the results eight months after injury at which time the brace has been entirely discarded. The left knee is stable and painless. The patient had about a 30 degree flexion of the leg at the knee joint at that time. The patient can walk up and down steps.

The patient was immediately taken to the operating room and under nitrous oxide anesthesia the dislocated knee was reduced. Traction and slight abduction of the leg were carried out by one of us while inward pressure on the outside of the upper part of the leg and countertraction was performed by the other. The leg was then held in reduction while a plaster spica cast was applied over sheet cotton extending from the hip down to the base of the toes with the knee in slight flexion.

After six weeks the cast was bivalved and massage and physical therapy were begun with active motion. In the seventh week a brace was fitted (fig 4 A) which was attached to the shoe and extended above the hip having a lock joint at the knee. The patient was then allowed to be out of bed and he began weight bearing with the aid of crutches. He was discharged from the hospital Jan 23 1935. Crutches were discarded on March 27, but he continued walking with the aid of the brace.

The brace was discontinued July 15 (fig 4 B and C) and the patient has been walking without any support since that time. He now has a stable, painless knee with about 30 degrees of flexion, with full extension of his leg at the knee joint.

stated that the crucial ligaments are not as important as they were once thought to be. Armitage Whitman, in discussing the same case, minimized the importance of the crucial ligaments and stressed the importance of developing a strong quadriceps muscle. We are heartily in accordance with Whitman's views. Whitman was also frank enough to admit that he had operated on a patient, doing a fascial transplant with poor results.

It is our opinion that dislocations of the knee should be treated conservatively, that is, by closed reduction and prolonged immobilization. We also believe that development of the muscles especially the quadriceps, is of supreme importance, since they have a great deal to do with stabilizing the knee.

9 Huber H H Yaffee A and Podlasky H B Traumatic Dislocation of the Knee Joint. Report of a Case. *Radiology* 7: 431-435 (Nov.) 1926.

10 Weigel E W Complete Dislocation of Knee. *Am J Surg* 9: 140-141 (July) 1930.



## SUMMARY

1 Complete dislocation of the knee joint is an unusual injury. Anterior and posterior dislocations are the most common types of dislocations.

2 Uncomplicated dislocations are usually simple to reduce, and the reduction should generally first be attempted by the closed method, with the knee kept immobilized for from six to eight weeks.

3 Serious complications may occur which necessitate open reduction, ligation of blood vessels or even amputation.

4 We do not favor open operation and attempt at repair of the crucial ligaments. Muscular development is highly important in stabilization after a complete dislocation of the knee.

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## AN EPIDEMIC OF INFECTIOUS DIARRHEA IN THE NEW-BORN

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The term infectious diarrhea is used to designate a syndrome characterized by a sudden onset of diarrhea, slight fever, dehydration, complications of the ear and respiratory tract and a high mortality. It is a distinct entity and is not to be confused with dysentery, summer diarrhea, gastrocolitis or enterocolitis. No specific organism has been isolated to account for this syndrome nor is there a characteristic pathologic picture of the gastro-intestinal tract to be noted in the necropsies. The data obtained from our study of thirty-two new-born infants who were stricken with this disease are herewith presented, first because of the tremendous havoc an epidemic of this sort may play in any nursery and secondly to acquaint the general practitioner with a condition that may be readily encountered in routine obstetric and new-born practice.

## PREVIOUS EPIDEMICS

Within the last year four such epidemics occurred in different institutions in New York City and its vicinity. A review of the literature disclosed but two references that deal to some extent with this particular condition, while the pediatric textbooks are entirely lacking in information on this subject.

In 1928 the Dicks and Williams<sup>1</sup> reported an epidemic at the Cradle, an institution which takes care of homeless infants from birth until their adoption. It is a model institution with adequate nursing facilities. This outbreak was characterized by marked dehydration, diarrhea and toxemia. In many of the infants the diarrhea was associated with otitis media and mastoiditis. Eighty-one babies contracted the disease, of whom twenty-seven died, giving a mortality of 31 per cent. Routine bacteriologic studies of the stools did not reveal any definite organism that could be held responsible for the intestinal infection. However, toward the end of the epidemic a new method of

culture was adopted and in five cases the Morgan bacillus was recovered. They concluded, therefore, that this epidemic was a primary infection of the intestinal tract caused by the Morgan bacillus. That inference may be questioned, since the study was not properly controlled. The outbreak lasted for several months and did not end until freshly boiled milk formulas were substituted for the various dried milks then used in the institution.

In 1930 Jampolis, Howell, Calvin and Leventhal<sup>2</sup> reported a study of thirty-four cases of diarrhea in the nursery of the Michael Reese Hospital. The epidemic lasted from February until the middle of June, during which time fourteen babies died, a mortality of 42 per cent. The clinical pictures of the sick infants were characterized by a marked alimentary intoxication, dehydration and high temperature. Stool cultures revealed *Bacillus mucosus* as the etiologic agent only toward the end of the second outbreak. This organism was traced to three of the attendants connected with the nursery.

In 1934 a similar epidemic broke out in a New Jersey institution.<sup>3</sup> The morbidity and mortality were very high. Bacteriologic studies did not uncover the cause of the infection. Several months later in a Queens County hospital an epidemic occurred, which persisted for several weeks. This one was identical with the others so far as the symptomatology and lack of causative organism were concerned. It required closing the nursery in order to stamp out the infection. Of the twenty-six patients that were ill, seventeen died.

In February 1935 an epidemic of infectious diarrhea appeared in the nursery of a Brooklyn hospital. During the first month only a few babies contracted the disease and the infection apparently subsided. The following month the number of cases assumed epidemic proportions, spreading from the ward nursery to the private nursery on the floor above. This series of cases was characterized by a low-grade fever, loose stools and signs of upper respiratory infection. Several babies had otitis media, while others had bronchopneumonia. Vomiting was a prominent feature and intestinal intoxication was apparent. Continuous intravenous medication was to no avail. Of the thirty-three infants who contracted diarrhea twenty-three died. The epidemic was not checked until the nurseries were closed. Intensive bacteriologic studies of the stools and nasopharyngeal secretions were carried out in the hospital laboratories and rechecked by the New York City Health Department Laboratories, but no etiologic organism was found.

During this time a similar epidemic was raging in the nursery of a Manhattan hospital. Here too the morbidity and mortality were high and again thorough study failed to expose an organism. At the time of this writing three more epidemics are raging in large hospital nurseries in New York City.

## CLINICAL REPORT

It is quite evident that infectious diarrhea in the new-born is a definite clinical entity and may occur in epidemic form in well regulated hospital nurseries, also that, despite the intensive investigations, the mode of transmission and the causative agent have not been determined.

Read before the Bronx Pediatric Society, Oct. 9, 1935.  
From the Pediatric Department of Morrisania City Hospital.  
1. Dick, G. F., Dick, Gladys H. and Williams, J. L. The Etiology of Enteritis Associated with Mastoiditis in Infants. *Am J Dis Child* 35: 9-5 (June) 1928.

2. Jampolis, M., Howell, Katharine M., Calvin, J. K. and Leventhal, M. L. *Bacillus Mucosus* Infection of the New Born. *Am J Dis Child* 43: 70 (Jan) 1930.

3. The names of the institutions are omitted since no report of the epidemic has been publicized.

The outbreak of infectious diarrhea in the nursery of Morisania Hospital began July 10, 1935. The census at the time was forty-three infants. Of these, thirty-two infants, which included four premature infants, contracted the disease. Fourteen babies died July 20 the epidemic terminated abruptly. The morbidity, then, was 74 per cent and the mortality 43 per cent.

All the infants who were subsequently stricken had been thriving normally, when the first manifestation of illness was a slight anorexia. Ordinarily the refusal of a feeding by a new-born infant is not considered an alarming symptom and is very often overlooked in a nursery. However, when it is associated with a low-grade fever, investigation is always imperative. The temperature was not, as a rule, high during the course of the epidemic. This was so in both the mild and the severe types of cases. In eighteen infants the temperature range was from 98.2 to 101 F, in the others it ranged from 101 to 103, as shown in the accompanying table.

Diarrhea appeared almost from the very onset of the disease. The average number of stools per day was six, the largest number in any case being twelve. The stools were yellow or greenish, watery, and explosive in character with many bubbles, resembling fermentative stools. Slight mucus and curds were present, but no blood. The reaction of the stools was markedly acid to litmus paper. This apparent fermentation of the stools was not due to excessive amounts of sugar, as the supplementary feedings were made of simlac, to which sugar is not added. The marked acidity of the stools may probably have been due to fatty acids resulting from an interference with proper fat absorption in the intestinal tract. It was interesting to note that the reaction of the stools ran parallel with the general condition of the infant. We soon learned from clinical observation that when the reaction became alkaline the number of stools diminished and they were of a better consistency. The change in reaction in

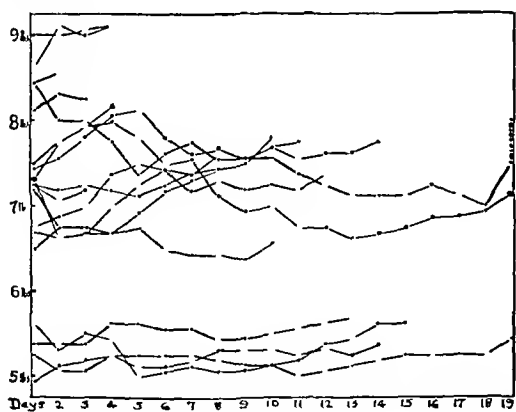


Chart 1—Weight curves from onset of diarrhea in infants who recovered

most cases occurred at the end of forty-eight hours. In no instance did the stool become alkaline in the fatal cases. In one case an infant who began to improve, having alkaline reaction of the stools, suddenly showed a reversal of the reaction and a relapse of the diarrhea occurred.

Vomiting was not a special feature of this syndrome. Only a few infants vomited excessively. The average loss of weight in the infants who recovered was

8 ounces (225 Gm). It is to be noted that the loss of weight, which was only gradual, occurred mainly in the heavier babies. The loss in the small infants was insignificant, which is the usual experience under normal circumstances (chart 1). Dehydration was only moderate in the uncomplicated cases. In the fatal ones (chart 2), however, water loss was rather marked and rapid. The average loss of weight was 23 ounces (650 Gm). Even babies under 5 pounds (2,268 Gm) lost considerably. Intoxication, on the other hand, did

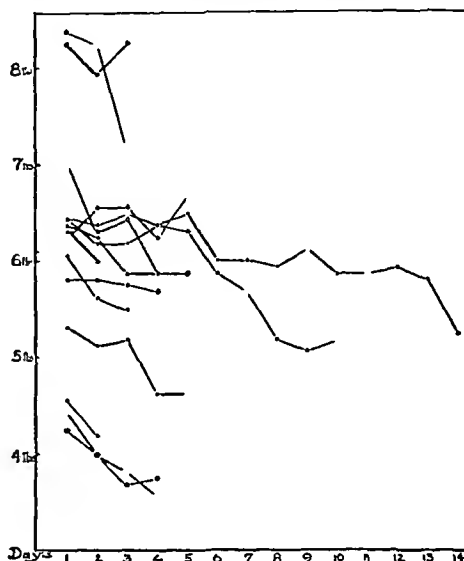


Chart 2—Weight curves from onset of diarrhea in infants who died

not play an important role in this epidemic, only one infant was moderately toxic. In other words, this syndrome did not present the characteristic picture of alimentary intoxication.

The age at the onset of the diarrhea varied from 2 to 20 days (chart 3). The fact that seventeen infants developed diarrhea on the sixth day after birth indicated a short incubation period for this infection. The duration of the illness was from six to twenty-six days, the average time for recovery being ten days.

The complications were mainly those related to the respiratory tract. Seventeen infants showed evidence of either catarrhal or purulent otitis media. The ear infection occurred in most instances at the beginning of the disease. In the others it developed soon after the diarrhea was established. In no case was the ear infection a terminal manifestation. Myringotomy was performed in all cases of otitis media. In a few infants free drainage was established. Anthrotomy was advised in one instance in which the aural drainage was profuse, but the infant died of bronchopneumonia before the operation was performed. Thirteen infants developed clinical evidence of pneumonia. Eleven of these infants contracted this complication in the early stages of the disease. In the others it was a terminal pneumonia.

To illustrate the type of cases we were dealing with, we are presenting two case reports. One represents the milder and uncomplicated type, while the other typifies the severe case complicated by pneumonia or otitis media.

**CASE 1 (recovered)**—K, a boy, was 15 days of age at the onset of diarrhea. He was a full term infant delivered by forceps. Nothing abnormal was noted in his physical exam-

ination except a subperiosteal hematoma. Roentgenographic examination of the skull failed to reveal any abnormality of the bones. Circumcision was performed on the eighth day without any ill effects. After an initial loss of 8 ounces (227 Gm) during the first four days, he regained his birth weight by the tenth day, 7 pounds 3 ounces (3,260 Gm). July 10, at the age of 14 days, slight anorexia was noted. The next day he had an elevation of temperature to 101 F, associated with loose, greenish yellow, acid stools. Up to this time he had been receiving breast milk and simlac. These were replaced by a half ounce (15 cc) of protein milk, with 3 per cent carbohydrate, alternating with one-fourth ounce (8 cc) of 1 per cent saline solution, given at hourly intervals. He was transferred to the pediatric ward and kept on this routine feeding under aseptic technique. After three days the stools became alkaline and he began to gain weight. The protein milk was gradually increased to 3 ounces (90 cc) with an addition of 5 per cent carbohydrate, and saline solution was discontinued. Finally, evaporated milk was used exclusively. He was discharged as cured July 20, nine days after the onset of illness, weighing 7 pounds 13 ounces (3,544 Gm).

CASE 2 (died).—R, a boy, was a normal full term baby, weighing 7 pounds 14 ounces (3,572 Gm) at birth. After an initial loss of 12 ounces (340 Gm) he gained weight for two days and then remained stationary at 7 pounds 6 ounces (3,345 Gm) until the onset of diarrhea at the age of 15 days. On this day he lost 12 ounces (340 Gm) and had an elevation of temperature to 102.6 F. He had seven loose, watery, greenish, acid stools. The temperature was 100 the following day and afterward varied from 100 to 98.6. A bilateral

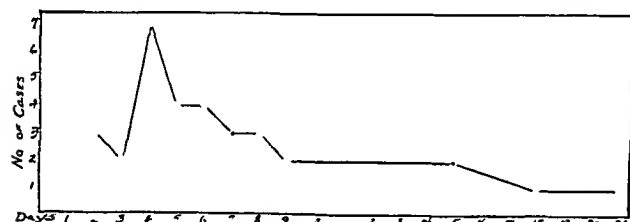


Chart 3—Age at onset of diarrhea

myringotomy was performed two days after the onset of illness. No exudate was noted at first, but two days afterward a mucoid discharge was seen in the left ear. The patient did not respond to the routine treatment and began to vomit. A starvation period was instituted, a stomach lavage was done and fluids were given by hypodermoclysis. Following this procedure the baby retained alternately small quantities of protein milk and saline solution. On the third day of illness signs of bronchopneumonia were elicited over the left lower lobe. His general condition was critical. Oxygen therapy was instituted. The pneumonia subsequently migrated to the right upper lobe. Extreme cyanosis, pallor and marked respiratory embarrassment, with terminal pulmonary edema then followed. There was a loss in weight of 26 ounces (737 Gm). A postmortem examination revealed bilateral bronchopneumonia, parenchymatous degeneration of the liver, heart and kidneys and an acute splenitis while the gastro-intestinal tract showed no characteristic changes.

#### PROGRESS OF THE EPIDEMIC AND METHOD ADOPTED FOR ITS CONTROL

July 10 we were informed that two of the premature infants were having frequent diarrheal stools. Examination revealed that one showed some evidence of an infection of the upper respiratory tract with involvement of the right ear. The infants were isolated and isolation precautions ordered. The next day two more infants developed diarrhea. The gravity of the situation was then realized and it became evident that we were dealing with an impending epidemic. In view of the fact that these infants, in addition to the gastro-intestinal disorder, also presented evidence of infection of the upper respiratory tract, the consensus was that

we were not confronted with a primary intestinal infection but with a symptom complex parenteral in origin.

In the hope of checking the spread of this infection the following procedure was instituted. All the infants affected were immediately transferred to the pediatric ward from the nursery. A special nursing staff was assigned to these children. Face masks were worn by this entire staff. The nurses were required to put on a fresh pair of sterile rubber gloves for each feeding of each infant, for it is conceivable that the hands which may have become contaminated in changing the diapers of an infected baby might, in spite of washing, contaminate another in the process of applying the nipple to a bottle. Evaporated milk mixtures were substituted for simlac.

Despite these precautions, three more infants came down with diarrhea in the next two days. Evidently all the infants in the nursery had already been exposed and consequently could not have been benefited by the measures instituted. Therefore, all the recently newborn infants were placed in a separate isolated room and were taken care of by special nurses, who did not come in contact with the nursery infants.

As we watched the rapid spread of the epidemic from day to day we were impressed with the idea that we were dealing with a condition similar to an airborne disease of apparently short incubation period. This belief was further strengthened by what occurred the following day. In addition to the new cases of diarrhea in the nursery, an infant who had been kept alone in a distant isolation room for some time on account of gonorrheal ophthalmia and had been cared for by a special nurse, developed diarrhea and a clinical picture similar to those cases in the nursery. All our efforts to curb the epidemic had apparently failed. The nursery, therefore, was closed on the fifth day of the siege and the search for an etiologic factor, which was begun on the third day, became an intensive study.

In their bacteriologic studies of dried milk employed in infant feedings, the Dicks<sup>4</sup> had found that cultures from the preparations contained a variety of living bacteria. Most of the infants in our nursery had been receiving simlac as a supplementary food when the outbreak occurred. Our attention was therefore directed to this powdered milk as the source of the intestinal disorder. A check-up of the diet revealed that the type of feeding was apparently of no etiologic significance. The infants were affected whether they had been previously fed breast milk exclusively, mixed feedings with simlac, or simlac alone. It may be of interest to note that culture studies from several specimens of the simlac revealed no pathogenic organisms.

The possibility of a carrier among the persons in contact with the infants was considered. Nasopharyngeal cultures from doctors, nurses, ward maids and the infants themselves were studied. These cultures were negative for the Friedlander bacillus, *Bacillus coli*, staphylococcus and streptococcus. Cultures were made from the stomach washings of two infants who had persistent vomiting. In both of these examinations *B. coli* was found. This unusual finding would suggest that this syndrome might be associated with a decrease in gastric acidity and thereby favored the growth of the colon organism. It was deemed unwise to make gastric analyses in these infants because their

<sup>4</sup> Dick, G. F. and Dick, Gladys H. The Bacteriology of Dried Powdered Milk Preparations Employed in Infant Feeding. *Am. J. Dis. Child.* 34: 1040 (Dec) 1927.

general conditions did not warrant it. The blood cultures taken from several babies who were gravely ill gave uniformly negative results. *B. coli* was found in cultures taken from the umbilical cords. This is not an unusual finding. Cultures from the rubber nipples, as well as from the nipples of the mothers' breasts whose infants developed diarrhea, were negative. Cultures taken following paracentesis of the eardrums in all cases of otitis media revealed *B. coli* in three instances and *Staphylococcus albus* in three others.

In order to determine whether this disease was a primary infection of the intestinal tract, repeated stool cultures were taken from all the infants. These were examined for organisms commonly associated with primary intestinal disorders such as typhoid, paratyphoid and *B. enteritidis* infection. With the exception of a positive culture in one infant, all were negative.

## TREATMENT

Treatment had little effect on those babies whose illness was complicated by pneumonia. The disease took a high toll of infant life irrespective of the type of treatment employed. This has been the experience in the other institutions as well. For instance, in the Brooklyn epidemic, in which continuous venoclysis and transfusion were employed, the mortality was higher than ours, in which intravenous therapy was not used.

In vomiting infants the treatment was begun with the cessation of all attempts at feeding for twenty-four hours. Stomach lavage was done only when the excessive vomiting could not be controlled. The necessary amount of fluid to prevent dehydration was given subcutaneously. After the vomiting stopped the infants were treated according to the plans outlined later.

## Summary of Observations

Case No.	Birth Weight Lbs Ozs		Lowest Weight Lbs Ozs		Weight Loss Ozs	Dehydration	Intoxication	Days to Regain Weight from Onset of Illness	Age at Onset Days	Duration of Illness Days	Temperature Onset F	High Temperature F	Outcome
1	7	8	7	7	1			No loss	3	13	98.6	100.4	Recovered
2		4	4	1.5	2.5			No loss	13	14	98	99.2	Recovered
3	8		7	5	11			No loss	5	3 A O R	97	100	Recovered
4								1	3	9 A O R	99.4	100.4	Recovered
5	4	1.5	3	11	18			8 Prem	15	4	100	101	Died
6	7	12	6	11	17			6	15	9	95.6	103	Recovered
7	7	14	6	4	26	Present			7	6	100	100	Died
8	7	11	5	14	20	Present			7	4	100	103	Died
9									2	5 A O R	93.4	102	Died
10	7	4	6	14	6			No loss	2	7 A O R	97	101.4	Recovered
11	7	7	6	9	14			16	4	21	95.2	103	Recovered
12	8	11	8	10	1			No loss	6	3 A O R	95.4	100	Recovered
13	5	11	5	1	10			13	7	14	99	102	Recovered
14	6	8	5	1	23	Present			4	10	99	102	Died
15	5	7	4	3	20	Present			6 Prem	2	100.4	101	Died
16	6	10	5	8	23	Present			6 Prem	2	99.4	100	Died
17	7	7	5	14	23				9	4	99.8	102.2	Died
18	8	11	8	11				No loss	21	3 A O R	99.2	101.2	Recovered
19	5	2	5	1	1			5	5	24	93.6	100	Recovered
20	6	10	5	4	22	Present	Present		4	14	93.2	100.2	Died
21	7	2	6	10	8			2	5	12	98	99.6	Recovered
22	5	13	4	10	19	Present			5	4	99.8	103.8	Died
23	0	11	7	15	25	Present			9	3	101.4	104	Died
24	5		3	9	23	Present			4	4	98.6	102	Died
25	7	11	6		27	Present			8	3	99	101	Died
26	8	12	8	7	5			No loss	4	1 A O R	100	100	Recovered
27								No loss	2	12	93.6	100.2	Recovered
28	8	15	7		31	Present		15	8	26	103	103	Recovered
29	8	8	8	2	6			No loss	7	2 A O R	99.2	99.2	Recovered
30	8	3	7	2	17			3	4	10	101	102.4	Recovered
31	9	2	7	3	31	Present		3	4	3	99	103.2	Died
32	7	1	7	1	13				6	2 A O R	93.4	102	Recovered
Averages	7.03 lbs		6.14 lbs		16.50 oz	12	1	7.3 days	6.7 days	10.15 days	93.66	101.3	16 recovered 14 died

A O R = child released at own risk

The culture of the stool of this infant contained an organism which apparently belonged to the paratyphoid group but agglutinated for typhoid. The exact organism in this case has never been satisfactorily identified.

Stool cultures from the nurses and interns assigned to the nursery disclosed normal results. The stool of one nurse was positive for the bacillus of paratyphoid, Flexner type, on one occasion. The agglutination test in this case was also positive for the organism. Subsequent examinations of this nurse's stool failed to show the presence of the organism again.

Cultures were made from various levels of the intestinal tract at necropsy. These revealed only *B. coli*. *Staphylococcus albus* was found in the lung abscesses in two cases. Cultures from the various organs yielded no abnormal observations.

All these bacteriologic studies were corroborated by the laboratories of the New York City Health Department.

No starvation period was considered advisable in infants who suffered from diarrhea alone. It should be emphasized that continuous and protracted starvation leads to serious nutritional disturbances. We were aware of the fact, however, that these patients did better on small amounts of food given at frequent intervals, no attempt being made, for the first few days, to satisfy the full caloric requirement of the infant. The prevention and correction of the dehydration were considered of prime importance. We felt that the marked acidity of the stools indicated the employment of a food that would facilitate fat absorption and change the intestinal flora. Accordingly, the infants were given one-half ounce (15 cc) of protein milk with 3 per cent carbohydrate alternating with 1 ounce (30 cc) or more of 1 per cent salt solution every two hours. In this manner adequate amounts of fluid and salts were administered. It was not found necessary, in most cases, to resort to the hypodermoclysis. The protein milk and saline solution were well

taken and retained. Not only was the loss of weight being controlled, but in many instances there was an increase in weight within forty-eight hours. In order to investigate the presence of occult edema, the McClure-Aldrich<sup>5</sup> test was done in several selected babies. This test consists of an intracutaneous injection of 0.2 cc of an 0.8 per cent solution of sodium chloride. The time required for the absorption of the bleb is usually fifty minutes in normal infants. If occult edema exists, the absorption is more rapid. Our cases showed no abnormal results. As the number of stools decreased, the amount of salt solution was diminished and a corresponding amount of protein milk was added to the diet.

In addition to the foregoing treatment, 5 minims (0.3 cc) of epinephrine 1:1,000 was administered by hypodermic injection every three hours during the acute stage of the disease. This was done to prevent circulatory collapse with rapid pulse and falling blood pressure. A few days before the infants were discharged, their diet was changed to evaporated milk mixtures. Early paracentesis was done in all babies who presented pathologic appearances of the abdomens. Our impression was that this procedure did not alter the course of the disease.

#### NECROPSY RECORDS

Of the thirteen infants that died in the hospital, autopsies were obtained in twelve (92 per cent). The one infant for whom no postmortem examination was permitted had a bilateral purulent otitis media and died with signs of an extensive bronchopneumonia.

#### GROSS EXAMINATION

The lungs in most cases (ten) showed pneumonic consolidations, lobular in character, with areas of atelectasis and edema. In two instances, in addition to the pneumonia, the lungs also presented abscesses. In one of these there was an additional right-sided pleural effusion.

The spleens showed a constant picture in all the cases, namely, marked congestion and a diminution of the lymphoid tissues. Three cases presented areas of hemorrhage.

The gastro-intestinal tract showed a normal mucous membrane, no enlargement of Peyer's patches or mucoid follicles, no ulceration or lesions suggestive of dysentery or typhoid. The sole abnormal finding in five cases was the presence of hyperemic spots in the mucosa of the intestine, which was suggestive of enteritis. The other organs showed the characteristic changes of general toxemia. Parenchymatous degeneration was particularly noted in the livers, kidneys and hearts. No hemorrhages were found in the adrenals.

#### MICROSCOPIC EXAMINATIONS

The outstanding features of the microscopic pathologic examinations were as follows. The lungs on section showed partially collapsed air vesicles in some instances and exudation and edema in others. There was also an accumulation of cells, most of which were of the mononuclear or fibrocytic type. An occasional lymphocyte and polymorphonuclear leukocyte were seen. Neither the typical fibrin accumulation of the early stage of lobar pneumonia nor the marked polymorphonuclear reaction in the alveoli of late lobar pneumonia was observed.

The spleens showed marked congestion with hemorrhage, decrease in lymphatic tissue and an increase of the large mononuclear cells. These changes were noted in eleven cases.

The livers showed fatty infiltration in three cases and cloudy swelling in six. The kidneys showed cloudy swelling in seven cases and congestion in two. There was no definite lesion noted in the gastro-intestinal tract except a questionable erosion of the surface mucosa in two cases. One adrenal showed microscopic hemorrhage and congestion. The remaining organs presented nothing unusual.

#### CONCLUSION

Infectious diarrhea is a definite clinical entity that may occur during the neonatal period. Early recognition of the seriousness of this intestinal disorder is imperative. Since reduction of the morbidity and mortality depends largely on the immediate measures taken to prevent the spread of an epidemic, early treatment of this disorder is necessary before the condition becomes grave as a result of dehydration and its associated toxicosis.

It is apparent that we were confronted with a specific syndrome limited to the neonatal period. This contention is based on the fact that no infant or older child exposed to the infection in the general pediatric ward succumbed to this disease.

In spite of careful clinical observations, intensive bacteriologic studies and postmortem examinations, we were unable to uncover the causative agent or the mode of its transmission to the newborn. The occurrence of these various epidemics without disclosing a uniform etiologic organism suggests the possibility of this syndrome being the result of a virus infection.

An interstitial type of pneumonia caused by a specific virus has been demonstrated experimentally in the lungs of a monkey.<sup>6</sup> As an atypical pneumonia was constantly present in our cases, Rivers, who has been investigating this question, suggested that a specific virus might be the causative agent in our epidemic. He believes that certain toxins of the colon bacillus may produce a clinical picture such as we have observed and an atypical pneumonia as observed in our necropsies.

#### SUMMARY

1 An epidemic of infectious diarrhea parenteral in origin, occurred, thirty-two infants presenting a characteristic syndrome.

2 There was no relationship between the normal type of feeding and the incidence of the disease.

3 Dehydration was evident, but true alimentary intoxication was noted in only one instance.

4 Otitis media and bronchopneumonia as complications were frequent.

5 The severity of the disease decreased with the return of alkaline stools.

6 Bacteriologic studies failed to reveal a causative organism.

7 The administration of 1 per cent salt solution orally was well tolerated and obviated the use of the intravenous route for nutrition or medication.

8 Necropsies did not show a pathogenic picture in the gastro-intestinal tract to indicate a primary intestinal infection.

9 The finding of pneumonia with mononuclear infiltration in the absence of any intestinal lesions suggested the possibility of a virus infection.

1749 Grand Concourse

<sup>5</sup> McClure, W. B. and Aldrich, C. A. Time Required for Disappearance of Intradermal Injected Salt Solution. J. A. M. A. 81: 293 (July 28) 1923. The Intradermal Salt Solution Test. J. A. M. A. 82: 1425 (May 3) 1924.

<sup>6</sup> Personal communication to the authors.



THE EFFECT OF IODINE IN  
ADENOMATOUS GOITER

WITH ESPECIAL REFERENCE TO TOXIC ADENOMAS

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There is some misunderstanding even yet, among certain of the profession with regard to the action of iodine in the various types of goiter.

It is generally recognized that iodine in any form (we use aqueous solution of iodine Lugol's solution, as a routine) causes a very beneficial response when used in exophthalmic goiter. This occurs practically without exception, but the iodine is especially useful in the preoperative treatment of exophthalmic goiter.

We do find "iodine fast" cases of exophthalmic goiter or patients who have been overtreated with iodine. These patients, as a result either of a developed tolerance to iodine or of excessive overactivity of the thyroid, finally reach a stage at which their toxic symptoms fail to recede with iodine medication and may even progress. We do not know just how or why this occurs, but it does occur. To be entirely on the safe side, one should not persist too long in iodine medication even in exophthalmic goiter.

Our object in this paper, however, is to present again to the profession the effect of iodine in adenomatous goiter. It has been known for over a century that iodine administered in adenomatous goiter often resulted in injurious effects. Marine<sup>1</sup> notes that Coindet made this observation in 1821.

These "injurious effects," of course are the development of symptoms of thyrotoxicosis brought on by the iodine. We have observed many of these cases and table 1 presents a partial list of such patients who have been operated on. The period of ingestion of iodine and the time of onset of symptoms are closely correlated, even though many of these patients have had nontoxic adenomas for years.

In a previous paper presented before the American Society for the Study of Goiter in 1924, one of us<sup>2</sup> presented a series of eighteen cases of adenomas of the thyroid made toxic by the use of iodine. The term iodine hyperthyroidism was suggested for this condition, which was presented as a distinct clinical entity. It was recognized that this syndrome had long been observed, Kocher<sup>3</sup> having described it as iod-Basedow's disease. Since this condition occurs only in the presence of an adenomatous goiter and since it does not result from the use of iodine in a normal thyroid gland, the term iodine hyperthyroidism in an adenomatous goiter was suggested as best describing this entity. So great was the reputation of Kocher and so strong was the impression made on the medical profession of the associated danger of iodine and exophthalmic goiter that in spite of several reports in the literature to the contrary the use of iodine in exophthalmic goiter was thought to be attended with great danger until Plummer pointed out this misconception in 1922.

Means and Lerman,<sup>4</sup> among others, have felt that hyperthyroidism was not induced in adenomatous goiter by the use of iodine. They say "we are very doubtful, however, of the existence of iod-Basedow, having never ourselves seen any convincing evidence of it."

Either the people of Boston must be educated to the point of refusing to take iodine in the presence of an adenomatous goiter or conditions there must differ from those in Switzerland, Ohio, Wisconsin and many other sections of this country as well as many other countries in which cases of iodine hyperthyroidism (iod-Basedow) in adenomatous goiter have been frequently observed.

Marine<sup>1</sup> states

There is sufficient evidence to show that there is a real danger in giving iodine to individuals with adenomatous goiter, and unquestionably the more concentrated iodized salts (from 1 10,000 to 1 5,000) cause injurious effects (iodine-Basedow's disease) in this particular group of patients while such doses as is well known have no injurious effects in normal individuals or in individuals with simple parenchymatous goiter. The elimination of this group with long standing adenomatous goiter I believe will largely prevent the occurrence of iodine-Basedow's disease and remove the most important objection to generalized iodine prophylaxis.

Marine further calls attention to the reports of Plummer and of McClure, which showed a distinct increase in the number of goiter operations in the years 1926 and 1927 in Michigan and Minnesota. This increase occurred mainly in the group of patients with long standing adenomatous goiters (so-called toxic adenomas) who had undoubtedly received too much iodine.

This authoritative conclusion of Marine tends to confirm the contention<sup>5</sup> of the danger of induced hyperthyroidism in adenomatous goiter from the injudicious use of iodine, as pointed out by a series of eighteen such cases in 1924. At that time this contention was refuted by Plummer and others but the literature of the past decade has contained numerous references indicating the danger of iodine in adenomatous goiter.

Thus Collier<sup>6</sup> states "Iodine after 30 in individuals with adenomatous goiter does not cure and may precipitate hyperthyroidism."

Schwytzer<sup>7</sup> feels that iod-Basedow, as Kocher termed it, is a toxic condition. Such a patient looks emaciated, has tremor combined with nervousness, and is excited and anxious.

Clute and Mason<sup>8</sup> in an article from the Lahey Clinic reported having seen nontoxic adenomas become toxic after long continued iodine feedings.

McCarrison<sup>9</sup> opposes the indiscriminate use of iodine as a prophylactic measure as both unscientific and dangerous.

Dinsmore<sup>10</sup> has seen many cases of iodine hyperthyroidism.

Boothby<sup>11</sup> notes that unfortunately even now Kocher's warning against the danger of the administra-

From the Jackson Clinic.  
1 Marine David Pathogenesis and Prevention of Simple or Endemic Goiter J A M A 104 2334 (June 29) 1935  
2 Jackson A S Iodine as a Cause of Hyperthyroidism with a Report of Eighteen Cases Journal Lancet 44 324 (June 15) 1924  
3 Kocher T Ueber Jodbasedow Arch f Klin Chir 92 1166 1910 Verh d d Gesellschaft f Chir 39 82 1910

4 Means J H and Lerman Jacob The Action of Iodine in Thyrotoxicosis J A M A 104 969-972 (March 23) 1935  
5 Jackson A S Iodine in Hyperthyroidism J Michigan M Soc 27 645 (Oct) 1928  
6 Collier F A The Use of Iodine in the Treatment of Goiter Ann Clin Med 5 93 (July) 1926  
7 Schwytzer Gustav Pros and Contras in the Use of Iodine for the Treatment of Goiter Minnesota Med 12 17-21 (Jan) 1929  
8 Clute H M and Mason R L Iodine as a Therapeutic Aid to Surgery in Primary Hyperthyroidism Boston M & S J 107 24-254 (Aug 18) 1927  
9 McCarrison Robert The Etiology and Epidemiology of Endemic Goiter in Report of the International Conference on Goiter August 24 to 26 1927 Bern Hans Huber 1929 p 220  
10 Dinsmore Robert Personal communication to the authors  
11 Boothby W M Plummer H S and Wilson L B Diseases of Parathyroid and Thyroid Gland New York Oxford University Press 1923

tion of iodine in adenomatous goiter is often not heeded and, as a result, many patients are rendered hyperthyroid

As previously stated, Means and Lerman<sup>4</sup> express doubt that iodine will produce thyrotoxicosis. Reports of such cases in large number by various competent investigators, however, as well as our own studies and the accompanying tables, present satisfactory evidence to the contrary.

We hold to the opinion that iodine, injudiciously administered, may be and often is the precipitating factor in producing thyrotoxicosis from a previously nontoxic thyroid adenoma.

De Quervain<sup>12</sup> holds a similar view. He believes that whereas incredible quantities of iodine can be borne without any thyrotoxic disturbance by most individuals who have normal thyroid glands, with goiter sufferers it frequently happens that daily doses of from

The study shown in table 1 is in line with this. Even though we present one case in which a woman, aged 29, had had an adenoma for fifteen years, it will be noted that she had been taking iodine for two years before the toxic symptoms became apparent to her. Thus a simple adenoma, even in a young individual, is a definite contraindication for iodine.

Especially do we want to call attention to the effect of aqueous solution of iodine in toxic adenomas. Although the literature since the publication of Plummer's epoch making article on the use of aqueous solution of iodine in exophthalmic goiter in 1923 has been voluminous, but scant mention has been made of the effect of iodine in toxic adenomas. In effect the action of iodine has been said to be variable and much less impressive.

Younans and Kampmeier<sup>14</sup> of the University of Michigan, however, reported that the effect was essen-

TABLE 1—Iodine Hyperthyroidism

Sex	Age	Onset of Symptoms	Weight Lbs. Pounds	Basal Metabolic Rate	Heart	Blood Pressure	Pulse	Iodine	Comment
♀	43	6 mos ago	17	+21%	Tachycardia	142/93	96	6 months ago took tablets for 1½ months	Weakness tremor
♀	36	3 months	15	+26%	Tachycardia	166/76	144	Iodine for 3 months from physician	Nervous irritable
♀	53	2 years	20	+19%	Tachycardia	148/100	80	Iodine tablets 1 t.i.d. for 4 months 2 years ago	Weak nervous
♂	66	1 year	45	+33%	Palpitation	172/98	96	7 bottles of home goiter cure last year	Weakness tremor
♂	36	4 weeks	10	+25%	Tachycardia	154/90	130	10 drops t.i.d. for 30 days 6 weeks ago	Tired weak
♀	29	1 year	7	+44%	Tachycardia	120/78	96	Iodine tablets in high school also 4 tablets once daily for last 2 years	Nervous
♂	51	6 months	1	+41%	Palpitation	148/88	96	10 drops t.i.d. for 6 months	Marked weakness
♀	44	4 years	20 4 months	+33%	Tachycardia	140/80	102	Iodine tablets for 3 months 5 years ago	Weak nervous
♀	61	1 year	20	+42%	Fibrillation	150/90	103	12 bottles and some tablets from advertising specialist	Weak nervous
♂	66	3 weeks	18	+66%	Normal	180/88	110	Iodine for 3 months, 15 to 30 drops one daily	Weak
♀	69	4 months	10 3 months	+21%	Fibrillation	140/110	85	Iodine for 4 months 15 to 30 drops	Weakness tremor
♀	34	2 months	10 2 months	+33%	Tachycardia	170/90	93	15 to 30 drops iodine once daily for 2 months	Nervous
♀	34	4 years	8	+40%	Tachycardia	150/88	120	4 years ago began taking iodine for 2 years	Tremor

0.5 to 1 mg. of iodine causes iod-Basedow to develop which lasts for months if not even for years.

We believe that this note of warning has not been without effect, and whereas it was a rather common practice ten years ago to use iodine freely for all types of goiter, the profession now has become more discriminating in the dispensing of this drug. As a result, cases of iodine hyperthyroidism are now becoming as unusual as are the crises in exophthalmic goiter. When the profession generally is cognizant of the danger of the prolonged use of iodine in exophthalmic goiter as suggested in a report of fifty-seven cases including four deaths in 1930, we<sup>13</sup> feel that there will be a general lowering of the death rate in exophthalmic goiter throughout the country, just as there has been in iodine hyperthyroidism.

It has been shown that adenomatous goiter does not become toxic in patients less than 30 years of age unless this is brought on by the injudicious use of iodine.<sup>5</sup>

tially the same as that seen in exophthalmic goiter. Therefore, they concluded that no essential difference in the pathogenesis of toxic adenoma and exophthalmic goiter can be assumed to exist on the basis of their response to treatment with iodine.

Since the response to iodine in exophthalmic goiter and toxic adenoma is so essentially different, it is difficult to conceive the idea of those who maintain that these two clinical entities are but variations of the same disease.

Means and Lerman<sup>4</sup> also state that patients with toxic adenoma respond to iodine as do those with typical exophthalmic goiter and that this response is constant and specific and will occur at any stage of the disease.

We cannot concur with this belief at all. Our toxic adenoma cases show many instances in which not only was the basal metabolic rate increased after aqueous solution of iodine, but the various symptoms of hyperthyroidism were aggravated noticeably.

We do notice improvement in toxic symptoms, including the basal metabolic rate, in many of our cases.

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following aqueous solution of iodine but it is impossible to estimate just how much of this is due to rest, quiet, sedation and symptomatic treatment and how much is due to the iodine

In a certain percentage of toxic adenomas, however, iodine definitely has a detrimental effect

One of us (H E F) has recently reviewed a series of 279 typical toxic adenoma cases in which operation was done at the Jackson Clinic between 1925 and 1935

The basal metabolic rate is the most tangible factor available for estimating the degree of thyrotoxicosis, and we were able to make some interesting observations in this respect

Our study shows that when we consider all the cases we might conclude that aqueous solution of iodine does have a beneficial effect because the average basal metabolic rate in the whole series was found to be decreased following iodine

None of the patients in this study had a basal metabolic rate higher than +64 per cent before the administration of aqueous solution of iodine, and the average basal metabolic rate was +34.1 per cent After the

Not only do our studies and those of Goetsch differ from those of Means and Lerman, but they are in marked contrast to those of Youmans and Kampmeier made at the University of Michigan They reported that the response to treatment with iodine in thirty unselected patients with toxic adenoma who were previously untreated with iodine was essentially the same as that seen in unselected cases of exophthalmic goiter In a later report from the surgical department of Michigan, however, Potter and Morris<sup>16</sup> reported that 36 per cent of the cases of toxic adenomas showed retractoriness to iodine or an accentuation of the symptoms (so-called iodine induced hyperthyroidism)

#### SUMMARY

1 There may be produced iodine fast cases of exophthalmic goiter

2 Iodine not only does no good but is definitely contraindicated in nontoxic adenomas of the thyroid

3 There is danger in administering iodine in cases of adenomatous goiter, of producing "iodine hyperthyroidism"

TABLE 2—Cases of Toxic Adenomas Made Worse by Iodine

Sex	Age	Basal Metabolic Rate		Heart	Blood Pressure	Pulse	Comment
		Before Aqueous Solution of Iodine	After Aqueous Solution of Iodine				
♀	38	+15%	+24%	Tachycardia dyspnea	100/80	110	Tremor nervousness
♀	41	+40%	+42%	Dyspnea	160/90	120	Tremor nervousness weakness adenoma for 30 years
♀	57	+22%	+30%	Palpitation	150/88	110	Weak lost 20 pounds in 4 years died 1 year after operation with toxic heart disease
♂	62	+42%	+58%	Tachycardia dyspnea	100/88	100	Weak lost 40 pounds in 1 year
♀	61	+86%	+33%	Palpitation auricular fibrillation	164/98	110 (irregular)	Lost 7 pounds in 2 months weak
♀	27	+33%	+31%	Dyspnea tachycardia	140/80	110	Weak nervous adenoma for 15 years
♀	60	+22%	+34%	Dyspnea auricular fibrillation	168/96	114 (fibrillating)	Goiter 30 years weak nervous
♀	50	+33%	+33%	Auricular fibrillation	180/80	97	Had had three nervous breakdowns
♀	60	+17%	+23%	Fast extrasystoles	110/100	132	Tremor
♀	62	+39%	+43%	Auricular fibrillation dyspnea	140/110	126	Tremor

administration of aqueous solution of iodine no rate was higher than +56 per cent, and the general average had been decreased to +26.9 per cent

Further study, however, reveals that approximately 62 per cent were benefited or were not affected and in approximately 38 per cent of the cases the basal metabolic rate, tremor tachycardia and the like were definitely made worse by iodine

Of those cases aggravated by aqueous solution of iodine, the basal metabolic rate increase varied from 1 to 13 points and averaged +5.8 per cent If these patients had been continued on iodine, the basal metabolic rate would undoubtedly have become elevated still further and the symptoms of hyperthyroidism aggravated still further

Table 2 presents from our study typical cases in which the basal metabolic rate and the toxic symptoms were definitely increased by the administration of aqueous solution of iodine

Attention is directed primarily to the basal metabolic rate for purposes of comparison of the conditions before and after the ingestion of iodine

Our observations on the effect of aqueous solution of iodine in toxic adenomas are similar to those of Goetsch<sup>15</sup> who reported that in a series of thirty-eight cases 45 per cent either showed no change or were made worse

4 Adenomatous goiter does not become toxic before the patient has reached the age of 30 unless the toxicity is brought on by the injudicious use of iodine

5 We have shown that iodine may and does produce thyrotoxicosis in adenomatous goiter as opposed to the contention of Means and Lerman

6 The effect of aqueous solution of iodine in toxic adenoma is not constant or specific and is not the same as that produced in exophthalmic goiter

7 Approximately 62 per cent of all cases of toxic adenoma are benefited by iodine or are not affected, while 38 per cent are made worse

8 In a series of cases of toxic adenomas, toxic symptoms and the basal metabolic rate were aggravated by aqueous solution of iodine

9 Owing to its variability of action, we believe that iodine should be given as a routine in all cases of toxic adenoma before and after operation, because two thirds of the cases will be improved and the harmful effect on the other third is negligible over a short time

#### CONCLUSIONS

1 Iodine should not be given to patients with nontoxic thyroid adenomas

2 The condition termed iodine hyperthyroidism is a definite clinical entity

3 Aqueous solution of iodine has an inconstant effect in toxic adenomas

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## POPLITEAL ANEURYSM

WITH REPORT OF A CASE

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It is not generally known that, with the exception of aneurysms of the aorta, popliteal aneurysms are found more frequently than those of any other artery.<sup>1</sup> According to Matas,<sup>2</sup> they are by far the most frequent of the surgical and operable types of the disease. Because of this frequency, their characteristic rapid progression and the efficacy of proper surgical intervention, a brief review of the subject will precede the presentation of a case illustrating tragic characteristics of the disease.

The agencies that weaken or traumatize the walls of other arteries, causing their dilatation, may cause the same variety of aneurysms of the popliteal artery. Trauma is a comparatively frequent factor and usually results in arteriovenous aneurysms and false aneurysms the walls of which are not made of any tunic of the artery wall but are composed of blood clot and surrounding fibrous structures.<sup>3</sup> A false pocket or fistula may thus be formed. Arteriovenous communications are designated "aneurysmal varix" or "varicose aneurysm," according to whether the fistula is direct or has an interposed false aneurysmal sac.

Arteriosclerosis is frequently the only demonstrable disease of the dilated walls. Trauma or strain may precipitate the dilatation or the symptoms of these cases.<sup>4</sup> A spontaneous or traumatic tear through an atheromatous vessel wall is another source of false aneurysm.<sup>5</sup>

The statistics of Stokes,<sup>6</sup> Garland<sup>7</sup> and Lucke and Rea<sup>8</sup> reveal syphilitic aneurysms as being far more common in larger arteries. However, in spite of an appalling lack of histologic proof, the frequency of 4 plus Wassermann tests associated with popliteal aneurysms leaves little doubt as to the importance of this etiologic agent.<sup>9</sup> Septic emboli bearing a variety of bacteria theoretically may grow on the intima or in the vasa vasorum of any blood vessel and through erosion lead to a mycotic (infectious) aneurysm.<sup>10</sup> It is doubtful whether congenital aneurysms of this moderately large artery ever occur, and no report has

been found of a dissecting aneurysm separating its relatively thin coats.

Because of its size and peculiar location it is thought that compression of the popliteal artery with the knees flexed and simultaneous exertion may put an unusually severe strain on its walls, causing small tears in the elastic fibers of the media in diseased vessels. There may be no immediate effect or, according to Delbit (cited by Matas<sup>11</sup>) it may be severe enough to cause prompt thrombosis of the artery. Repeated small tears may lead to its gradual weakening and dilatation.

As a whole, popliteal aneurysms vary from others in that they generally progress more rapidly and are subject to frequently unheralded, sudden complications. A laminated clot often partially fills the dilated lumen and rarely shows any evidence of fibroblastic organization. This clot may break loose and occlude the lumen, causing a dry gangrene. According to Matas,<sup>11</sup> spontaneous gangrene occurs more frequently with thrombosis of the popliteal variety than with any other aneurysm. Moist gangrene may result from mechanical interference with the venous as well as with the arterial circulation. Should the collateral circulation be sufficient, the thrombosed vessel may become organized and a rare cure result, or a later recurrence of the aneurysm may be found. Gradual stretching and absorption of ligaments and erosion of bone may proceed until the aneurysm ruptures externally into soft tissues or into the knee joint. This complication is a constant and serious menace in any case of this disease.<sup>12</sup>

The first symptoms noticed may be those of interference with moving the knee, complete flexion or extension becoming especially difficult and painful. There may be a slight dragging sensation in the leg for months, with no other symptoms. Mechanical interference with venous return results in edema. In a high percentage of cases, pressure on the adjacent popliteal nerve is productive of numbness and pains of varied severity and location. They may be quite deceiving and give no indication as to their source, as in the case of McKenna.<sup>13</sup> The demonstration of a popliteal mass with expansile pulsating walls and a loud bruit is diagnostic. Vascular tumors must at times be excluded. This is most satisfactorily accomplished by arteriography.<sup>14</sup>

Before the advent of modern surgery, hemorrhage and gangrene were feared in every case of popliteal aneurysm, and amputation was the only treatment. Hunter and Desault in 1785 both practiced proximal ligation and thus later became the widely accepted form of therapy. In brief, the present day management consists in promoting collateral circulation and testing the efficiency of this circulation, then surgical exploration and selective correction, followed by further stimulation of circulation.

Special clamps and methods have been devised by means of which occluding pressure can be exerted on the cardiac pole of the aneurysm. According to Matas,<sup>15</sup> Baker<sup>16</sup> and others, repeated systematic occlusion aids greatly in increasing collateral circulation. The application of metallic bands directly to the artery, producing partial occlusion above the diseased area, has

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been used by Matas<sup>15</sup> and Reid<sup>16</sup> with success. Lately sympathectomy as a preliminary has been advised by Bird,<sup>17</sup> Mulvihill and Harey<sup>18</sup> and Gage.<sup>19</sup> Passive vascular exercise or similar methods for the production of rhythmic positive and negative atmospheric pressures on the affected part have strong supporters.<sup>20</sup> The vasodilatory effect of whirlpool baths with warm water or of diathermy<sup>21</sup> may very well have a place in the treatment of popliteal aneurysms. In a study of 100 cases of sudden occlusion of the arteries of the extremities, McKeechne and Allen<sup>22</sup> advise three important "don'ts" in the treatment of these cases: "Don't delay treatment for more than two or three hours, don't elevate the extremity, and don't subject it to heat which exceeds by more than a few degrees the temperature of the body." The extremity should be protected from drying by bandages when heated under a cradle or by other forms of dry heat. Opiates, alcohol and papaverine hydrochloride may relieve pain and increase peripheral circulation.

Matas<sup>23</sup> stresses four methods of testing the efficiency of collateral circulation: (a) the hyperemic reaction or modified Moszkowicz color test, (b) the preliminary occlusion of the main artery close to the proximal pole of the sac with phlebotomy and removable bands, (c) oscillometric manometry to determine peripheral blood pressure after temporary occlusion of the main artery, (d) clinical evidence of a persistent circulation and nutrition of the peripheral parts in spite of permanent absence of peripheral pulses.

After the preliminary stimulation of collateral circulation and satisfactory evidence of its sufficiency, a careful exploration of the aneurysm is indicated in the hope of performing a restorative or reconstructive type of operation particularly applicable to saciform and certain traumatic cases in which a large portion of the circumference of the artery wall is in good condition. In other cases obliteration, ligation at one or both poles or ligation with excision is practiced. The most widely approved Matas<sup>24</sup> approach of endo-aneurysmorrhaphy has given the most excellent results. Here the vessel is entered the communicating lumens are sutured closed and the aneurysm is obliterated by plication.

#### REPORT OF CASE

A white man aged 64 married, a book auditor, admitted to the Bethany Methodist Hospital suffered with a severe continuous pain in the left calf and popliteal space. Four years before he had stepped off a rather high platform landing heavily on his feet and experiencing pain in the left calf and popliteal space. The pain recurred rather severely the next day and lasted several weeks during which time he limped about. This incident had been forgotten and he had noticed no discomfort or disability except for pains in the calf muscles associated with excessive walking and relieved by a few minutes rest. Suddenly, one day after he left his car and started up steps there developed a most severe pain in the

lower left popliteal area. There was a numbness and tingling in the unusually white, cold foot. Two quarter-grain (0.016 Gm) doses of morphine were necessary to ease the excruciating pain.

He was found to be in excellent physical condition except for the leg. This was cold from the knee down there was a loss of sensation of pain in the foot and an area of hyperesthesia was found in the upper half of the lower leg. No pulsations were found in the popliteal, anterior or posterior tibial arteries on the affected side. In the same arteries on the right side the pulsations seemed weak. Nothing unusual was felt or heard in either popliteal space. Popliteal thrombosis resulting from arteriosclerosis appeared certain.

In spite of complete rest local heat and dependence of the limb there developed a dry gangrene resulting in a sharp line of demarcation just below the head of the fibula by the seventh day following the onset.

The temperature rose slightly, from 99.4 F to 100.4 F during this period. There was also a slight elevation of pulse rate from 88 to 100 per minute. The respiration rate remained normal. The blood pressure at the onset was 220 mm of mercury systolic and in a few days varied from 120 to 140 systolic and 90 diastolic. There was a constant mild leukocytosis of 13,500 white blood cells with 80 per cent neutrophils. The red blood cell count and hemoglobin as well as blood chemistry and Wassermann tests gave normal results. A few granular casts and a one plus albumin were constantly found in the urine. An electrocardiogram tracing was interpreted as showing left ventricular preponderance but no graphic evidence of serious myocardial damage.



Two thrombosed popliteal aneurysms

A mid thigh amputation on the eighth day was followed by an uneventful convalescence except for the development on the eighth postoperative day of pain and rales in the lower left portion of the chest with a temperature of 101 F and no change in respirations or cough. This complication subsided in a few days. The amputation stump had healed rapidly and completely and he was discharged on the twentieth postoperative day.

In brief the pathologist's examination revealed the shriveled dry hard black toes soles and lower dorsal region of the foot with a dry hard gray-blue mottled lower leg below a line of demarcation in the middle upper third. The thrombosed popliteal artery had two aneurysms as shown in the accompanying illustration. The smaller at the upper end measured 3.5 cm long and 2.6 cm in diameter while the larger at the lower extreme measured 7 cm long and 3.7 cm in diameter. The aneurysms could be definitely palpated because of their size and position being partially hidden by muscles. The popliteal vein and nerve were closely adherent to the aneurysmal sacs. Small arteries entering both sacs were thrombosed. The femoral artery contained a loose dark red clot and had many small atheromas along its intima. The two tibial arteries were patent and had almost normally flexible moderately sclerotic walls.

Microscopic sections from the aneurysmal walls showed extensive arteriosclerotic changes with hyalinization of the thickened intima and inner portion of the muscularis also rather frequent deposits of cholesterol crystals and calcium in these hyalinized areas. Fat stains revealed an extensive fatty degeneration extending from the intima out and in places tiny fat droplets filled the cytoplasm of cells through the entire breadth of the muscularis. Elastic stains showed a marked paucity, granularity and fragmentation of elastic fibers especially in regions in which hyalinization and fatty degeneration were most extensive.

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## SUMMARY AND CONCLUSIONS

The relative frequency of popliteal aneurysms, their often rapid progression, the disastrous gangrene in unaided cases and the efficacy of proper management makes this an important subject for every physician who is likely to encounter the condition. The near hopelessness of an untreated case in which sudden thrombosis develops is illustrated in the case of popliteal aneurysm the result of arteriosclerosis with a probable factor of trauma.

## EXPERIENCES IN THE SUMMER EPIDEMICS OF ACUTE ENCEPHALITIS IN TOKYO

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Outbreaks in the summer and early fall of an acute febrile disease with peculiar meningitis-like symptoms and a high mortality rate have long been known in Japan. In the epidemic of 1919 a few years after the reports of epidemic (lethargic) encephalitis in Vienna had come from Economo, medical men and neurologists in Japan first realized that they had been dealing with a type of acute encephalitis differing in seasonal incidence and clinical manifestations from epidemic encephalitis common in Europe. In 1924 there was a widespread epidemic in Kagawa and other provinces, the largest one ever recorded, in which extensive clinical and pathologic investigations were carried out. Occurrence during the summer, abrupt onset with high fever, stormy course with meningitic as well as encephalitic symptoms, and only occasional, transient, ocular manifestations, rapid recovery leaving few residual effects such as parkinsonism and a striking increase in both incidence and fatality rates with advancing age were mentioned in the reports as characteristic features distinguishing the Japanese type from the so-called "European form." Kaneko and Aoki<sup>1</sup> classified the prevailing type as type B to distinguish it from type A or the Economo type. Futaki called it "summer encephalitis," differentiating it from the epidemic encephalitis of Economo. Takaki,<sup>2</sup> by transmission of the disease to rabbits, isolated strains of virus which he called "virus of encephalitis japonica" differentiating it experimentally from the various herpes encephalitic viruses.

The epidemic encephalitis occurring in St. Louis and Kansas City during the summer of 1933 has recently been reported by Hempelmann,<sup>3</sup> McCordock,<sup>4</sup> Lenke,<sup>5</sup> and others as quite similar to the Japanese B type in clinical, pathologic and epidemiologic features. This information seems to conflict with the erroneous contention of some authors that the Japanese B type is unique in Japan. The results of etiologic investigation

of Webster<sup>6</sup> and others have been very helpful in throwing light on the work of our scientists, who have been continuing their investigation of the etiology of epidemic encephalitis in Japan.

It is of interest here to note that during recent epidemics in Japan we have encountered some cases of the Japanese B type encephalitis in Europeans and an American, in concomitance with many other cases in Japanese inhabitants of Tokyo City. In the summers of 1929 and 1930 when a considerable number of acute cases of encephalitis occurred among Japanese, a Spaniard and a Russian afflicted with the B type were admitted to St. Luke's International Hospital. They both recovered within a month, showing no evidence of residual nervous damage. Toward the end of August 1935 there occurred a sudden outbreak of the same type of encephalitis, to the great surprise of medical practitioners as well as inhabitants of the metropolis, with 1,362 cases reported in this city by September 10. With the morbidity rate not more than 22 cases per hundred thousand of population, and the mortality rate less than 30 per cent, this epidemic has generally been regarded as much milder than the heaviest one of 1914 in Kagawa. Nevertheless, it has received special attention from clinicians and medical scientists of the city, as it was the first opportunity for them to observe closely as many cases at one time occurring near by or admitted to their own hospitals or medical institutions. To St. Luke's International Hospital we admitted two Russians and an American. The two Russian patients after stormy courses both died within a week and the clinical diagnosis was verified by autopsy. The American, who showed a mild but typical clinical picture, is now convalescing.

All our patients were adults in the third or fourth decade of life. In three of them, who recovered, the onset of the illness was rather abrupt, with high fever, severe headache and meningitic or encephalitic symp-



Fig. 1.—Perivascular accumulation of mononuclear cells in the thalamus of a Russian patient who died with the Japanese B type encephalitis in Tokyo, Sept. 2, 1935. Positive mouse test.

toms, while in two fatal cases the initial rise of temperature was gradual, as in typhoid, without showing any evidence of involvement of the nervous system. These patients died within two days after typical clinical pictures of encephalitis had developed.

Early diagnosis in such cases is difficult. Among neurologic symptoms, neck rigidity, marked trismus,

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rigidity of arms and occasionally also of legs with exaggerated tendon reflexes or with occasional transient paralysis, tremors of the tongue and hands, mental confusion, mental apathy and speech disturbances of aphasic nature were common in all cases. There was no ocular manifestation other than photophobia in two or three cases and transient unilateral ptosis of the eyelid in one case. The Kernig sign or Babinski reflex

logically there were perivascular accumulations of mononuclear cells (fig 1), small focal collections of mononuclear cells with a few polymorphonuclear cells and degeneration of nerve cells in basal nuclei, pons and medulla. Also in the meninges there was an infiltration of mononuclear cells.

The clinical and pathologic manifestations in foreign patients with encephalitis were all comparable to those of many Japanese cases encountered during the same epidemics in this city. As a result of our experiences in the recent epidemic in Tokyo, we feel that we have further evidence that no clear distinction can be made between the Japanese B type and the reported St. Louis type.

With regard to etiologic factors, very little has been known concerning Japanese epidemic encephalitis. A long continued exposure to the direct effects of sunlight, mental or physical fatigue in hot weather and like causes have been blamed as contributing etiologic factors in ushering in the illness. But as the recent epidemic continued through cooler weather, the foregoing factors could not be held responsible for the onset of illness in many cases.

So far as the infective agent is concerned, we are now undertaking experimental studies according to those reported by Webster and others<sup>6</sup> of the St. Louis epidemic, which gave such successful results.

In our laboratory, Kudo and Uruguchi have inoculated mice intracranially, intranasally and intraperitoneally with brain emulsions obtained from three fatal cases in the hospital. The brain tissue was removed aseptically from the bodies kept overnight in the morgue, preserved in glycerin for from two to ten days in the icebox and then emulsified. The mice used for the experiments were white mice of the strains called German mice, available in this city. The emulsions of brain tissue were diluted with physiologic solution of

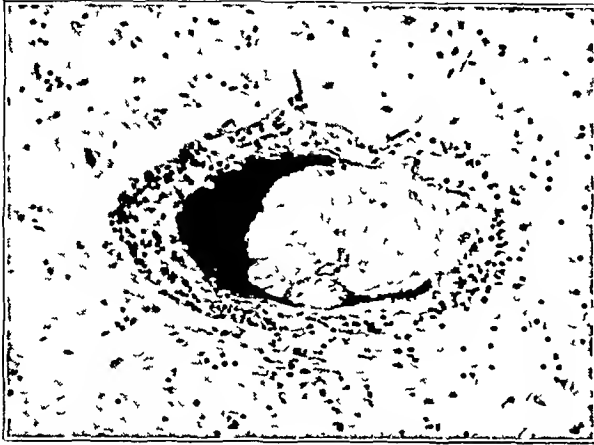


Fig. 2—Perivascular accumulation of mononuclear cells in the thalamus of a Japanese patient who died with the Japanese B type encephalitis in Tokyo, Aug. 27, 1935. A specimen from the same patient was used for the first successful transmission of the disease to mice.

was only occasionally demonstrable. Retention of urine or incontinence of urine and feces was present in two fatal cases.

Concerning the clinical course, the temperature, having reached a maximum exceeding 104 F, which occurred somewhat earlier than the fifth day of the disease, began to fall by lysis and in three cases reached normal within ten days of the onset. In one of these there was a secondary rise of temperature of the remitting type, which lasted for a week. This was not attended by aggravation of neurologic symptoms and was attributed to a pulmonary complication. These three patients recovered with few residual effects. Two patients died with severe respiratory failure within two days of encephalitic manifestations when the temperature tended to fall. The deaths occurred on the fifth and the seventh day of the illness.

The spinal fluid examined at the height of the disease was clear under moderately increased pressures showing moderately increased cell counts with mononuclear preponderance. In one of the fatal cases 72 per cent of 232 cells were found to be polymorphonuclear leukocytes in fluid obtained one day after the encephalitic symptoms set in with convulsive attacks. The patient died within a day after this test. Blood examination revealed moderate degrees of leukocytosis in all but one. In one fatal case not the one just mentioned, there was no leukocytosis although the blood was examined when the patient had a fever. The Schilling hemogram however showed a definite shift to the left. Bacterial cultures of blood and spinal fluid were all negative.

At autopsy the meninges were found to be edematous with a moderate increase in amount of the cerebrospinal fluid and with marked congestion of blood vessels. Cross-sections through the brains revealed obvious congestion of intracerebral blood vessels with pinkish discoloration of the gray substance of the cerebral cortex as well as basal nuclei or pons. Histo-

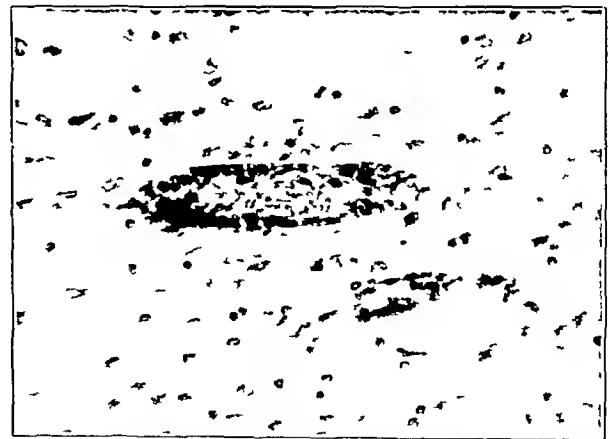


Fig. 3—Perivascular accumulation of mononuclear cells in the brain of a mouse that died showing characteristic encephalitic manifestations five days after the transmission of the disease from an infected mouse.

sodium chloride to about 10 per cent of which 0.03 cc was injected intracerebrally and from 0.2 to 0.5 cc intraperitoneally into each mouse.

The first patient from which the brain tissue was used was a Japanese woman aged 58 who had shown a clinical picture characteristic of Japanese B type encephalitis. She died in the hospital after four days on Aug. 27, 1935. The clinical diagnosis was verified by autopsy (fig 2). Brain tissue was preserved in glycerin for two days before it was emulsified. Follow-

ing combined intracerebral and intraperitoneal injections into twelve mice, they all remained apparently healthy for from four to seven days and then became hyperesthetic, showing first ruffled fur and then tremors, convulsions and peculiar motor disturbances, followed by prostration and death in from six to nine days.

Perivascular accumulations of mononuclear cells histologically demonstrable in their brains were comparable to those in the human brain. The brain tissue from infected mice was further inoculated by the same technic into the second series of healthy mice. These specimens proved bacteria free in aerobic and anaerobic cultures. After a three or four day incubation these inoculated animals also developed tremors, occasional convulsions, hyperesthesia and prostration and died in four or five days. Characteristic lesions were also found histologically in their brains (fig 3).

Transmission of the disease from infected mice to healthy mice has been so far successfully carried through five successive series without any apparent decrease in the response to the inoculation. Berkefeld N candle (prodigiousus-fast) filtrates of brain tissue emulsions from the infected mice as well as the aforementioned human specimen have proved as readily infective as the original emulsions. Specimens of brain tissue secured from two Russian patients were also inoculated into mice after they were preserved in glycerin for six and ten days respectively. With the six day glycerinated specimen, transmission was successful, seven of nine inoculated mice dying in from five to eight days, and one in fourteen days. On the second transmission of the disease animals died in from four to seven days. The third transmission also was successful. The series of animals into which the ten day glycerinated specimen was inoculated were still alive after more than two weeks, showing no response. Control tests with brain tissues obtained from healthy mice or from human patients who had died of other diseases were all negative.

Further investigations are now being conducted to determine whether or not the infectious agent thus isolated can be neutralized by serum of individuals convalescent from the encephalitis of the recent Tokyo epidemic. We have already secured a positive evidence for it. To establish this point, however, we shall have to await completion of the experiment.

As we have demonstrated experimentally that in the recent epidemic in Tokyo the disease can be easily transmitted from fatal cases of encephalitis to mice and from mice so infected to successive series of healthy mice, and that the infectious agent thus obtained traverses Berkefeld N candles we have been inclined to infer that the so-called Japanese B type encephalitis and the St. Louis type are similar, not only in clinical or anatomic characteristics but presumably also in the biologic nature of the infectious agent.

#### SUMMARY

In the recent epidemics of encephalitis in Tokyo the Japanese B type occurring in occidentals was found to be similar in all respects to that contracted by the Japanese.

In the recent outbreak of encephalitis in Tokyo, the transmission of the disease to mice was found to present no difficulties, agreeing with the experience in the 1933 St. Louis epidemic.

The Japanese B type and the St. Louis type are alike not only in their clinical and pathologic features but also in etiology.

## Clinical Notes, Suggestions and New Instruments

### THE TREATMENT OF CHRONIC (TUBERCULOUS AND OSTEOMYELITIC) FISTULAS WITH SILVER NITRATE STICKS

ERNST FREUND M.D. VENICE, FLA.

In his paper on the formation and disappearance of amyloid in man, Waldenström<sup>1</sup> writes the following paragraph:

"When a patient is admitted to the hospital he is given a few weeks to get accustomed to his new surroundings. During this time his fistulas are washed once or twice daily with a solution of 1 per cent iodine in benzene. This is done with exceedingly great care. The surrounding skin is also carefully washed and a large sterile dressing applied. Should the fistulas subsequently prove to be too narrow, causing the pus to stagnate somewhere they are treated strongly with lapis. Should this prove insufficient a method is adopted which I believe very excellent. A stick of pure silver nitrate, about 6 cm. long, is inserted into the fistula its end coming just underneath the skin edges. The following day the stick is pulled out by a pair of forceps and accompanying it there comes out a rod of silver albuminate sometimes as thick as a finger, consisting of the tuberculated wall of the fistula, the granulations soon become healthy at this place."

This method appealed to me because of its simplicity and I tried it out in about twenty cases during the last year. First I limited it entirely to cases of chronic bone tuberculosis complicated by chronic fistulas. Later it was also tried in cases of chronic nonspecific osteomyelitis with sinuses, but roentgenologically without more active signs of bone infection. Healing of the sinus tract was not obtained in all cases but in a number the results were very satisfactory. In one case of chronic tuber-

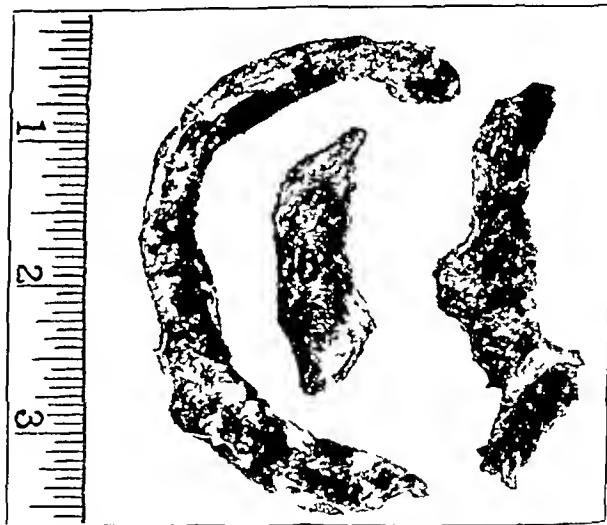


Fig 1—Three sinus tracts incrustated by silver nitrate removed two or three days after insertion of silver nitrate sticks.

culous hip disease in which the surgical fusion was postponed for years because of a persisting sinus, the method proved especially beneficial. The sinus tract closed within a short time and fusion was performed without complications. I have not yet seen any damage from insertion of the silver nitrate stick. There is no resorption of silver in the feces or the urine. There were not even traces and only mild general symptoms. The first hour the patient complains of some burning sensation and headache and may even be a little restless the first night but all discomfort disappears next day.

I proceed in the following way. The sinus tract is probed to determine its caliber and direction. If it is narrow it is

From the Department of Orthopedic Surgery, State University of Iowa (Dr. Arthur Steindler).  
<sup>1</sup> Waldenström, Henning. On the Formation and Disappearance of Amyloid in Man. *Acta chir. Scandinav.* 63: 479 (Aug. 25) 1928.

enlarged very gently and gradually with a straight hemostat. The silver nitrate stick is then inserted slowly, always following the sinus tract. Care should be taken not to produce a false route. If the sinus tract is longer than the ordinary silver nitrate stick, parts or the whole length of a second stick can also be inserted. The skin is then covered by a thick layer of zinc oxide ointment in a wide area around the sinus tract and



Fig 2—Microscopic cross section through sinus tract after silver nitrate treatment. Concentric precipitation of silver nitrate albuminates in the peripheral layers of the fistula. Histologic structure is well preserved in the inner layers.

a sterile dressing is applied. There is considerable purulent discharge from the sinus tract and as a rule, despite the ointment, some irritation of the skin by the dissolved silver nitrate. If one tries to remove the silver nitrate stick after twenty-four hours, one succeeds only partially, and the patient complains of pain; the silver nitrate has dissolved but the sinus tract is not yet loose. In chronic sinuses it takes about two or three days before one is able to remove the entire tract. With a forceps one can easily remove the incrustated sinus tract which in some cases was more than 6 inches long and of the thickness of a little finger. Immediately after removal the tract is gray but turns black quickly if exposed to light. The remaining sinus tract is covered by nice, red, healthy-looking granulations. It is washed out with solution of hydrogen peroxide. The finger-thick canal very rapidly shrinks and the healthy granulations may lead to complete and permanent closure.

The histologic structure of sinus tracts that were removed could easily be made out. Quite frequently tubercles can be seen in the inner layer. The vessels, especially, are nicely visible because their walls show silver impregnation. There is a regular concentric precipitation of silver albuminates farther away from the sinus lumen. The inner layers show only fine granular diffuse involvement. The concentric arrangement is strikingly similar to the structure of gallstones or cartilaginous joint bodies in which also anorganic lime salts become precipitated in organic matter. It is an expression of the gradual diffusion of the silver salts and corresponds most likely to the

concentric rings described by Liesegang. In his colloid chemical studies Liesegang made the observation that the solid form of a not easily soluble substance becomes precipitated in gel not evenly but in layers. He explains the concentric arrangement of the layers with a rhythmic diffusion of the dissolved substance. The separation of the incrustated sinus wall takes place along the most peripheral ring or tube of precipitation. The histologic details of this process could not be examined because the zone of demarcation remains in the body.

My only purpose is to call attention to a method that is harmless and may often render good service in chronic sinuses.

Florida Medical Center

## PARADOXICAL EMBOLISM

ROBERT KORITSCHONER, M.D., KANSAS CITY, MO

From the Department of Pathology, Menorah Hospital

Statistics show a patency of the foramen ovale in approximately 33 per cent at all autopsies. Paradoxical embolism is the passing of a blood clot from the right to the left side of the heart through the patent foramen ovale. This possibility enables the pathologist to account for certain embolic phenomena. The explanation, however, is often questioned by the clinician. The incidence of an embolus passing through the



Fig 1—Right auricle with the embolus coiled up.

patent foramen ovale is not of great clinical importance but carries considerable pathologic interest. Only twelve cases of this type are found in the literature.<sup>1</sup>

1. The following include:  
Zahn, F. W. *Rev. med. de la Suisse Rom.* 1881, p. 227.  
Hauer, G. *München med. Wochenschr.* 25: 583 (1888).  
Polar, A. *Thec. de Genève* 1884 (three cases).  
Verne, Max. *Verhandl. d. deut. path. Gesellsch.* 17: 215 (1909).  
Thompson, T. and Evan, William. *Quart. J. Med.* 23: 155 (Jan. 1930) (two cases).  
Willing, M. *Z. f. Kreislaufsch.* 19: 505 (Aug. 1) 1927.  
Bernard, W. C. *Quart. J. Med.* 23: 305 (April) 1930.  
Taylor, James. *Paradoxical Embolism*. *Arch. Path.* 16: 901 (Dec.) 1935.  
French, I. R. *Paradoxical Embolism*. *Arch. Path.* 11: 383 (March) 1931.

The following case is reported because of its rarity

A woman aged 63 died six days after a uterine suspension. Her condition was satisfactory until the evening of the sixth day, when she collapsed and became dyspneic and cyanotic. She partially recovered but died suddenly three hours later. At autopsy a large well formed embolus, slightly adherent, was found in the main branch of the left pulmonary artery, and several smaller ones of the same character were demonstrated in the branches of the right pulmonary artery. The heart showed a long embolus which had been caught as it passed through the foramen ovale. The main portion lay coiled up in the right auricle. One end extended 1 cm into the left



Fig 2—Left auricle with the end of the embolus sticking through the foramen ovale

auricle. The origin of these emboli was traced to the right iliac and femoral veins where a roughness of the intima, without thrombus was demonstrated.

The clinical symptoms were evidently due to a massive embolus in the main branch of the pulmonary artery. As a result of the obstruction to the pulmonary circulation there ensued a marked increase in blood pressure in the right side of the heart which produced a dilatation and stretched the pre-existing small opening in the foramen ovale. The diminished pulmonary circulation decreased the pressure in the left auricle. Thus disturbed balance probably produced a condition which favored the development of a paradoxical embolism. It is conjectured that a second embolus was formed between the two attacks. This clot was probably released into the circulation and was lodged at the foramen ovale. The second embolus coiled up in the right auricle and completely obstructed the pulmonary circulation which caused immediate death.

4949 Rockhill Road

**Too Much Digitalis**—The most frequent sign of too much digitalis is nausea and vomiting and when occurring they indicate cessation of the drug—Dr Henry Christian quoted by Fisher Alexander Aphorisms in Clinical Medicine *Canad J Med & Surg* 77 166 (June) 1935

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A CARTER Secretary

### DeFOREST DYNATHERM ACCEPTABLE (Types "M," "NE" and "D")

Manufacturer Lee DeForest Laboratories, Los Angeles

These short wave diathermy machines are recommended by the manufacturer for the application of medical diathermy and for electrosurgery. The chassis, construction and electrical circuits for the three models are identical. The difference between the three models is confined entirely to the construction of the cabinet. The weight of all three is eighty pounds.

Model "M" is encased in a heavy steel cabinet with steel panels.

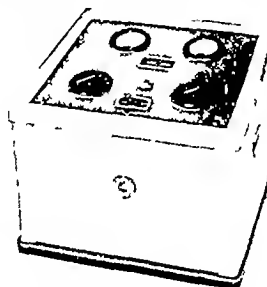
Model "NE" is in a steel case and is in every respect identical to Model "M" with the exception that the instrument panel is of the sloping vertical type rather than the sloping horizontal type as is Model "M."

Model "D" embodies the same chassis and circuit except that it is encased in a suitcase type of cabinet for portability.

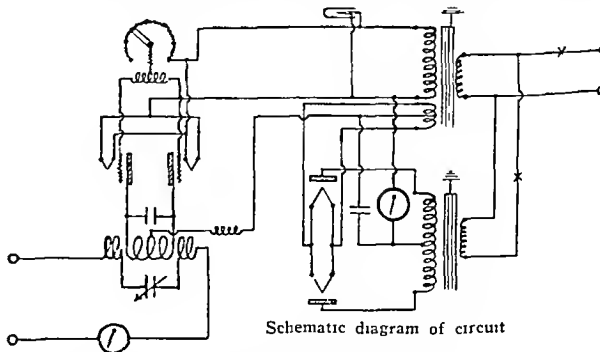
Models "M," "NE" and "D" make use of oscillating audion circuit employing four vacuum tubes—two for rectification and two for generating high frequency currents. The wavelength is 18 meters. These units operate from 110 alternating current circuit. Special additional equipment is necessary in case the physician's supply is direct current. The maximum power input for these units is approximately 1,000 watts.

Since there is no acceptable method for measuring the output of diathermy machines, this value is not stated. Operating the machine under full load indicated that the temperature rise of the transformer and the cabinet was within the temperature limits considered safe by the Council.

At the request of the Council the firm submitted data concerning the tissue heating efficacy of the machine when used on the human thigh. The results of the investigations showed that, when using the cuff electrode technique the temperature rise in the deep-lying tissue was higher than when using conventional diathermy—the criterion which the Council has adopted for investigating short wave machines—and these results were confirmed by the Council's investigator. Cuff electrodes are supplied as standard equipment. Furthermore pad elec-



DeForest Dynatherm Model M



Schematic diagram of circuit

trodes are also part of the standard equipment and the firm claims they are efficient applicators.

Burns may be produced by this machine but if ordinary care is observed they may be avoided. Their likelihood to occur is much less than when conventional diathermy is used.

The machine was used by the Council's investigator in a clinic for several months and he reported that it gave satisfactory clinical service. In view of the favorable report the Council voted to include the DeForest Dynatherm (Types "M," "NE" and "D") in its list of accepted apparatus.



# THE KANSAS CITY SESSION

AMERICAN MEDICAL ASSOCIATION, EIGHTY-SEVENTH ANNUAL SESSION

KANSAS CITY, MO., MAY 11 15, 1936

## OFFICIAL CALL

### TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The eighty-seventh annual session of the American Medical Association will be held in Kansas City, May 11-15, 1936

The House of Delegates will convene at 10 a m Monday, May 11 In the House the representation of the various constituent associations for 1935 1936 and 1937 is as follows

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	2
California	7	New York	17
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	7
District of Columbia	1	Oklahoma	3
Florida	2	Oregon	2
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	2	Tennessee	3
Kansas	3	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	6	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	5	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	1
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association the Medical Corps of the Army the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each

The Scientific Assembly of the Association will open with the general meeting to be held at 8 p m Tuesday May 12 The sections will meet Wednesday, Thursday and Friday, May 13 14 and 15 as follows

#### CONVENING AT 9 A M THE SECTIONS ON

Practice of Medicine	Nervous and Mental Diseases
Surgery, General and Abdominal	Dermatology and Syphilology
Ophthalmology	Gastro-Enterology and Proctology
Pharmacology and Therapeutics	Radiology

#### CONVENING AT 2 P M THE SECTIONS ON

Obstetrics, Gynecology and Abdominal Surgery	Pathology and Physiology
Laryngology Otology and Rhinology	Preventive and Industrial Medicine and Public Health
Pediatrics	Urology
	Orthopedic Surgery

Miscellaneous Topics Session on Tuberculosis

The Registration Department will be open from 8 30 a m until 5 30 p m Monday Tuesday Wednesday and Thursday May 11 12, 13 and 14, and from 8 30 a m to 12 noon Friday May 15

JAMES S MCLESTER President  
NATHAN B VAN ETEN Speaker House of Delegates  
OLIN WEST Secretary

## MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included

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BUREAU OF HEALTH AND PUBLIC INSTRUCTION—W W Bauer Director Chicago

BUREAU OF INVESTIGATION—Frank J Clancy Director Chicago

BUREAU OF MEDICAL ECONOMICS—R G Leland Director Chicago

CHEMICAL LABORATORY—Paul Nicholas Leech Director Chicago

LIBRARY—Marjorie Hutchins Moore Librarian Chicago

\* Deceased

## KANSAS CITY, 1936—THE HEART OF AMERICA

The ruddy vigor enterprise and enthusiasm of the great Southwest, combined with the beauty and cultural achievements of the East, make Kansas City truly The Heart of America.

Trading posts were founded early in the nineteenth century by Indian trappers and fur traders who paddled their canoes to the junction of the Kaw and Missouri rivers where Kansas City now lies. Fur traders were followed by agricultural pioneers by the middle of the century a newspaper, telegraph and postoffice were established. Pioneer villages then known as Westport and Independence had become outfitting posts for the caravans that crossed the West. The famous Santa Fe trail had its inception within the present city limits. Stimulated by the steamboat trade, Kansas City rapidly became the logical distributing point for the great Southwest.

Today Kansas City blends the culture of the East, the vision of the West, the energy of the North and the hospitality of the South. Proud of the beauty and extent of its cultural achievements, Kansas City's modern Municipal Auditorium, new Jackson County Court House, Power and Light Building, United States Post Office, William Rockhill Nelson Gallery of Art, Liberty Memorial and unsurpassed boulevards and residential districts are all concrete evidence of the good taste and artistic appreciation of this agricultural empire.

### THE AUDITORIUM

The American Medical Association is fortunate in being among the first to enjoy the new \$6,000,000 Municipal Auditorium. Located in the heart of downtown Kansas City within two to five blocks of almost all hotels, the new auditorium is a tribute to modern architecture.

Complete air conditioning and mechanical ventilation assure controlled and uniform temperatures within regardless of prevailing weather conditions. This is made possible by the third largest air conditioning system in the country, the system installed in the auditorium being exceeded only by those in the department of commerce building and the postoffice department building in Washington.

The main arena seating from 13,000 to 15,000 resembles a huge amphitheater or stadium and its lighting and acoustic properties are said by engineers to be the finest in the country.

Modern even to its color scheme of rich yellows, rusts and blues, the exhibition hall affords some 90,000 feet of space while foyers and arenas increase this area by 60,000 additional feet.

Two small theaters seating 3,500 and 1,200 and thirty-three committee rooms accommodating groups of from twenty-five to a hundred all of which may be placed in direct communication with the main arena by use of the high fidelity public address system make the hall readily adaptable to any meeting requirements.

### ACTIVITIES OF THE JACKSON COUNTY MEDICAL SOCIETY

Since 1881 the Jackson County Medical Society has been the guide and translator of all things medical in Kansas City.

Through the untiring effort of early members of the society the necessary bond issue was initiated and passed for the establishment of a municipal hospital. Interested obstetricians later stimulated the establishment in the General Hospital of an antepartum clinic which now serves some thirty patients daily and has greatly reduced fetal and maternal mortality.

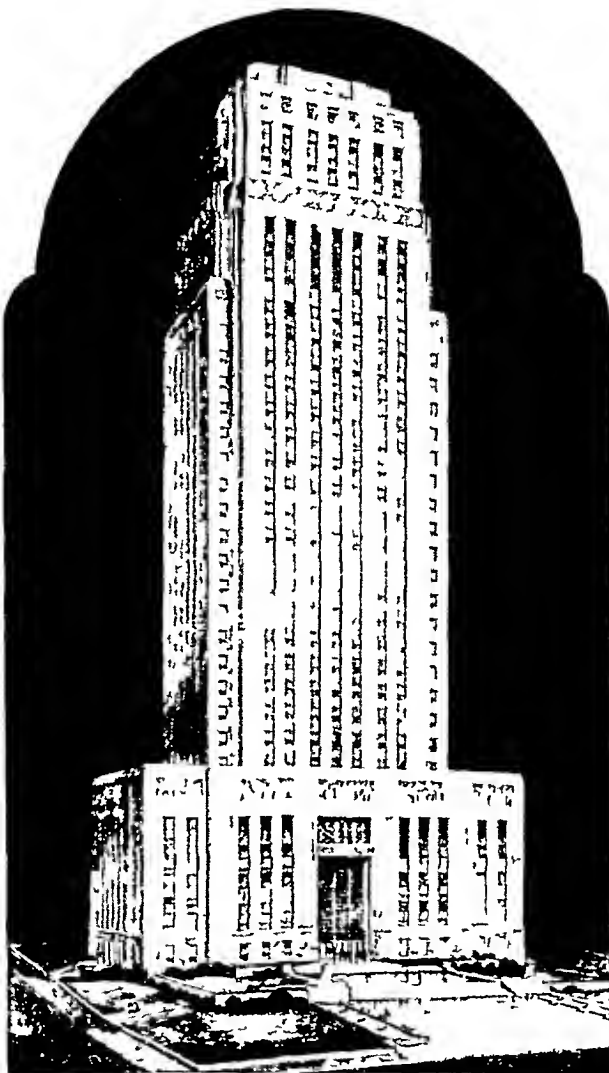
The Kansas City medical profession is ably represented in the educational field, many widely known teachers and writers coming from their ranks. Such writings have been widely used in army medical units translated into many languages and used as textbooks throughout the world. Others have written extensively on such special fields as pathology, dermatology, congenital syphilis, focal infection and allergy, posture or child health.

The Jackson County Medical Society is justly proud of its library. This library after long discouraging hard years of labor on the part of an interested few, now represents one of the largest collections owned by a county society in the United States.

### KANSAS CITY SOUTHWEST CLINICAL SOCIETY

Kansas City's Southwest Clinical Society is among the pioneers in its plan of organization for a method of promoting postgraduate medical education. It was organized in 1922 with a limited membership of surgeons, internists and specialists of Greater Kansas City. This society mimeographs a daily bulletin of the operations, ward walks and clinics at eleven allied grade A hospitals in Greater Kansas City. It conducts the annual fall clinical conference during the first full week in October with at least ten distinguished guests and scientific and technical exhibits. Its membership promotes monthly hospital clinics at one hospital each month on the second Tuesday and combines with the Jackson County Medical Society for the evening program on the same day. It also publishes a monthly bulletin which is distributed to 6,200 physicians of Kansas City and surrounding territory. This bulletin carries the papers read by distinguished guests and members of the fall conference and monthly hospital clinics.

Since 1933 the society has conducted a spring medicomilitary symposium for two days during the second week in March in conjunction with the eighth army corps area and naval reserve authorities open to all physicians and required for army and navy reserve officers. An office with a full time executive secretary is maintained at 205 Shukert Building, 1109 Grand Avenue.



THE CITY HALL NOW UNDER CONSTRUCTION

## KANSAS CITY PUBLIC HEALTH DEPARTMENT

The Jackson County Medical Society has continued to develop power and influence during its fifty-four years of existence until it now virtually dominates the health policies of the community it serves. The Kansas City Department of Health enjoys the counsel and complete cooperation of its membership.

Kansas City for the past ten years has operated under the city manager type of government. Under the direction of Dr. Edwin Henry Schorer, the work and organization of its health department differs somewhat from that of most cities.

The director's office, the personnel, vital statistics, communicable diseases and child hygiene divisions are located at the city hall. All the other activities except the Municipal Tuberculosis Hospital are on what is known as 'Hospital Hill' and include the divisions of laboratories, inspection, sanitation, municipal hospitals, ambulance and motor vehicles maintenance and repair and the central service station.

The municipal hospitals are General No. 1 for the white, General No. 2 for the colored and the tuberculosis and isolation



RETAIL SHOPPING DISTRICT IN KANSAS CITY

hospitals for the white and the colored. The staffs of the general hospitals are voluntary. 165 at the hospital for the white where only members of the Jackson County Medical Society are eligible and forty-one at the hospital for the colored where only physicians belonging to the Jackson County Medical Society or the Kansas City Medical Society (colored) are eligible.

The salaried personnel of the health department numbers 484 for General Hospital No. 1, 186 for General Hospital No. 2, 151 for the Tuberculosis Hospital and 142 for all other departments. General Hospital No. 1 has 400 beds, General Hospital No. 2, 208, Isolation Hospital for the white, seventy, Isolation Hospital for the colored, forty-two, and the Tuberculosis Hospital, 213 beds for the white and forty-seven for the colored.

The annual appropriation for the health department amounts to about 20 per cent of the general fund revenue, which is quite liberal since the health department cooperates only on sewage disposal, collection of garbage and the production of the water supply.

The Tuberculosis Hospital at Leeds is one of the few municipal hospitals for the treatment of tuberculosis. It has a completely modern surgical pavilion, which has been completed within the last year. Cases are transferred from the state and county sanatoriums for surgical treatment. The operations most often performed are phrenicectomy, thoracoplasty, pneumolysis and plumbage. Patients are admitted through the tuberculosis service in cooperation with the Kansas City Tuberculosis Society, and the hospital's combined plant has been checked by many of the country's foremost phthisiologists and proclaimed a complete and modern working unit for the treatment of all types of pulmonary tuberculosis.

Outpatient departments are maintained at both of the general hospitals and a social service department is included which cooperates with the Council of Social Agencies. All patients except some at the Tuberculosis Hospital are registered at the Central Index of Indigency.

At all the municipal hospitals and outpatient departments there are dental services operated by members of the staff selected from the membership of the Kansas City Dental Society.

In no instance does the health department concern itself with diagnosis. In every instance where possible, it provides the materials prescribed by the professional staff.

## HOSPITALIZATION

Greater Kansas City has twenty-six hospitals with a bed capacity of 3,279. Of these, twenty-one are in Kansas City, Mo., and five in Kansas City, Kan. Included are:

Hospital	Under Auspices of
Neurological Hospital	Eleemosynary corporation
Children's Mercy Hospital	Association
Memorial	Association
Evangelical Hospital	Evangelical Deaconess Society
Farmount Maternity Hospital	Privately owned
Florence Crittenton Home	Women's Interdenominational Missionary Council
Colored Hospital (public)	City of Kansas City
General Hospital (public)	City of Kansas City
K. C. Industrial Hospital	Privately owned
Tuberculosis Hospital (public)	City of Kansas City
Lakeside Hospital	Privately owned
Research Hospital	Association
St. Joseph's Hospital	Sisters of St. Joseph
St. Mary's Hospital	Sisters of St. Mary
St. Luke's Hospital of Kansas City	Episcopal Diocese
St. Vincent's Maternity Hospital	Catholic Diocese
Trinity Lutheran Hospital	Augustana Lutheran Synod
The Willows Maternity Sanitarium	Privately owned
Vineyard Park Hospital	Privately owned
Wesley Hospital	Privately owned
Whitely Provident Hospital (colored)	Association
Kansas City, Kan.	
Bell Memorial Hospital (public)	State of Kansas—University of Kansas Medical School
Doughless Hospital (colored)	African Methodist Episcopal Church
Providence Hospital	Sisters of Charity
St. Margaret's Hospital	Sisters of St. Francis

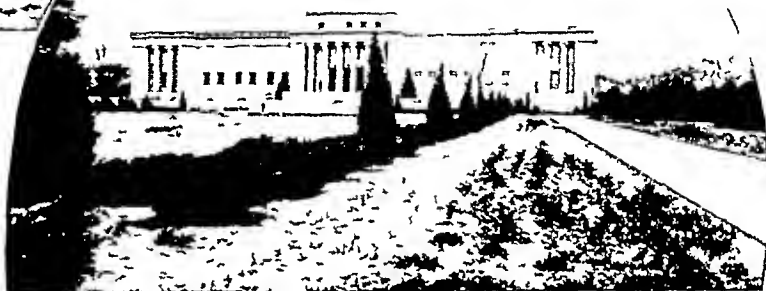
Kansas City's Mercy Hospital, an outgrowth of the determination and untiring effort of Dr. Katherine B. Richardson, is as important to Kansas City as Jane Addams and Hull House to Chicago.

Handling more than 22,000 children a year who are unable to pay a dollar for their care, the cornerstone of the new million-dollar Mercy Hospital bears the inscription: In 1897 Dr. Alice Berry Graham founded this hospital for sick and crippled children to be forever non-sectarian, non-local and for those who cannot pay. Founded on the ideals of Dr. Graham and her sister Dr. Richardson, Mercy had its beginnings in their home—first as one bed, then a house of a few rooms, then a larger house, followed by a bigger brick hospital on Highland Avenue—and then the beginnings of the present hospital at Independence and Woodland Avenue. With its growth in size, expenses mounted, and following Dr. Graham's death in 1913 it was only Dr. Richardson's genius in planning and in raising money and her executive ability in organization that made it possible to continue. Like an itinerant preacher she journeyed each Saturday to some neighboring town in Kansas City territory, never asking for money but explaining the purposes, ideals, equipment and organization of Mercy to the leading women in that town. Today, as a result, some 300 Mercy hospital clubs in 300 neighboring towns and villages send thousands of chil-



ONE OF THE NUMEROUS  
KANSAS CITY GOLF COURSES

## Views About Kansas City



ABOVE—WILLIAM ROCKHILL  
NELSON ART GALLERY



ABOVE—COUNTRY CLUB PLAZA



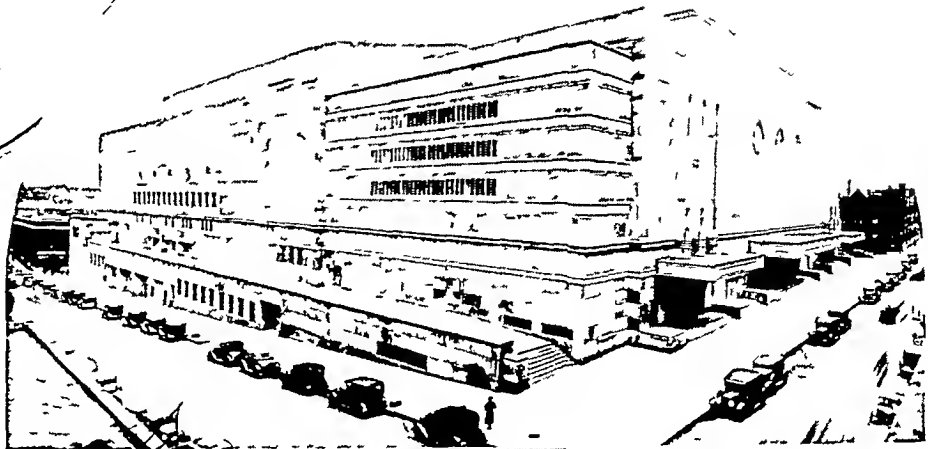
ABOVE—THE KERSEY  
COATES DRIVE



THE ENTRANCE TO SWOPE PARK

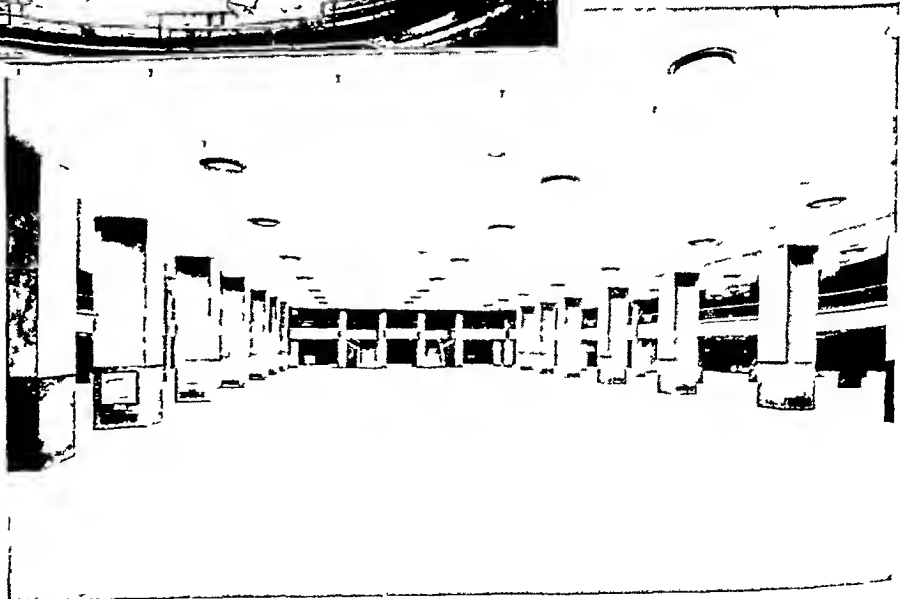


The Kansas City  
Municipal  
Auditorium



AT LEFT—THE  
MAIN ARENA

AT RIGHT—MAIN  
EXHIBITION  
HALL



dren and, seeing the work being done lend their support. Donations from this source have amounted to as much as \$15,000 annually. So for thirty-nine years Dr. Richardson and her efficient superintendent Anna A. Anderson with a staff of twenty-five of the finest physicians and surgeons in Kansas City, have donated their services to the children of the poor. The afflicted ailing, crippled, deformed, abnormal and neglected have all found a haven at Mercy. In recent years Mercy has received a share of the money raised in the annual charity drive and today finds it entirely free from debt and prospering on the ideals and spirit built into it by its courageous founders.

Another Kansas City hospital of national interest is the clinical branch of the University of Kansas School of Medicine. Located two miles southwest of the Municipal Auditorium at Thirty-Ninth and Hudson Road, it occupies a new site on the Kansas side of this metropolitan area. The newly developed medical plant is situated on a beautiful and slightly location occupying fifteen acres of land and now composed of a group of four new buildings of modern construction including Bell Memorial Hospital, the Nurses Home, the Medical School and the Power Plant. New units now under construction include the children's pavilion, the new clinic building or outpatient building, and the research laboratory. The last unit mentioned is to be known as the Hixon Laboratory for Medical Research.

The first year and a half of the medical course is given at the University of Kansas at Lawrence forty miles west of here where the departments of anatomy, physiology, biochemistry and

general medicine and surgery and orthopedics, with complete x-ray and laboratory equipment. Wesley Hospital offers special x-ray equipment for high voltage therapy.

The services of a full time pathologist at Bethany Hospital place immediate frozen section, tissue and necropsy work at the disposal of physicians. This hospital is also fully approved by the Crippled Children's Commission for treatment of children with orthopedic conditions and congenital cataract.

In addition to Providence and St. Mary's hospitals, which are general hospitals equipped to do general work, Kansas City is proud of its new Menorah Hospital, opened in 1931. Menorah is well known for its cancer clinic, having \$10,000 worth of radium. Here also is the most completely equipped physical therapy department in Kansas City.

St. Vincent's Maternity hospital operated by the Catholic Sisters of Charity of St. Vincent de Paul specializes in obstetrics exclusively. The Neurological Hospital or Robinson Clinic is an eleemosynary corporation founded in October 1936 and it limits its cases to nervous and mental illnesses, alcoholism, narcotics and allied conditions. It has an open staff and the facilities of the former Christian Church Hospital have been remodeled to adapt the building to the particular needs of this specialty and provide sufficient inside recreational space. Special type steel casement windows obviate the necessity of bars and heavy screens, and recreational facilities include game rooms, a music room, theater and auditorium, roof garden, individual and hall radios, scientific and popular library, gym



THE KANSAS CITY GENERAL HOSPITAL

bacteriology are located. The last two and one-half years are given in the Kansas City Division of the Medical School. The clinical branch of the Medical School was first organized in 1905 through the amalgamation of four schools in this district and one located in Topeka. It was started by Dr. Simeon Bell who presented the university eight acres of land and erected a laboratory and teaching building for the use of the Medical School in Rosedale, Kan., formerly a suburb of Kansas City, Kan., and a part of the metropolitan area of Greater Kansas City. In 1924 this original site was considered unsuited for the development of a new medical center and a new site composed of fifteen acres located one mile south of the old location was secured. At this place three units are now completed and four additional ones are in the course of construction.

The University of Kansas Hospitals, the main unit of which is known as Bell Memorial Hospital, have at present a capacity of 250 beds and are owned and controlled by the Medical School. Eighty-five per cent of the beds are available for teaching purposes in spite of the fact that the hospital is 80 per cent self-supporting. The outpatient department serves patients from either side of the state line and the attendance exceeds 70,000 visits annually. The departments of pathology and pharmacology are still located at the old site one mile away but will be moved to the new location as soon as the new buildings are ready for their accommodation.

St. Joseph's Hospital has a well equipped physical therapy department, x-ray department and approved clinical pathological laboratory and obstetric department.

Research Hospital has one of the most complete diagnostic clinics in this section. St. Margaret's hospital in Kansas City, Kan., offers a research fellowship under the Boylan endowment fund. Its departments include pediatrics, obstetrics, urology,

nasium, occupational rooms and ample provision for outdoor sports.

Wheatley Provident Hospital for the colored specializes in eye, ear, nose and throat work, has all the standard laboratory equipment, and is one of the few hospitals for Negroes to receive an A rating.

#### DENTAL EDUCATION

Dental education in Kansas City was first established with the organization of the Kansas City Dental College in 1881, the Western Dental College being established nine years later.

These two schools were united in 1919 as the Kansas City Western Dental College, and the charter of the new organization established the school on a strict educational basis, divorcing it from all commercial interests. In 1923 a large new fireproof building was erected and the most modern equipment purchased, placing the school among the first ten of some forty comparable colleges and entitling it to an A rating by the Dental Educational Council of America.

Through the generous bequest of Dr. Howard S. Lowry, the college was enabled to establish three internships in children's dentistry and receives approximately 200 children each week in its free clinic, the patients being selected from the public schools by visiting nurses.

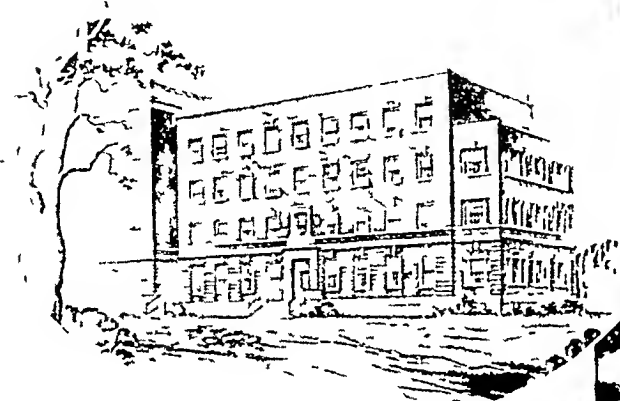
Another gift of \$27,000 was made in 1935 which was used to purchase 300 oral surgery models which constitute a visual education in this field.

With nine full time instructors, the enrollment of the Kansas City Western Dental College ranks fifth in the United States. There have been about 4,000 graduates since its inception fifty-five years ago and its students include representatives from practically all states of the Union and some foreign countries.

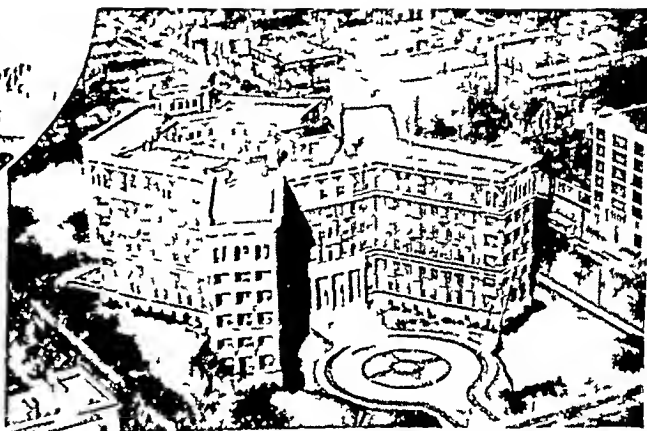
Kansas City  
Hospitals



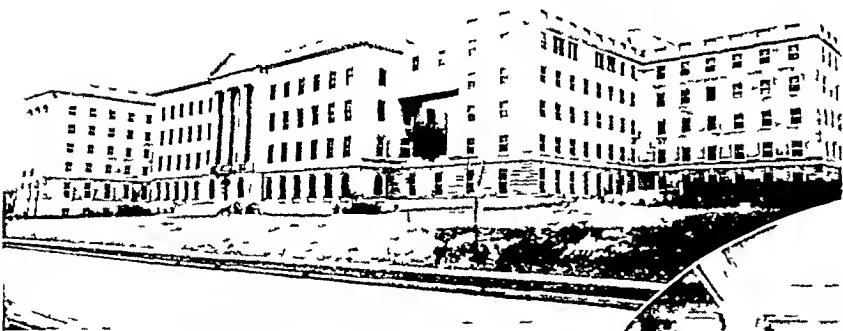
ST MARY'S HOSPITAL



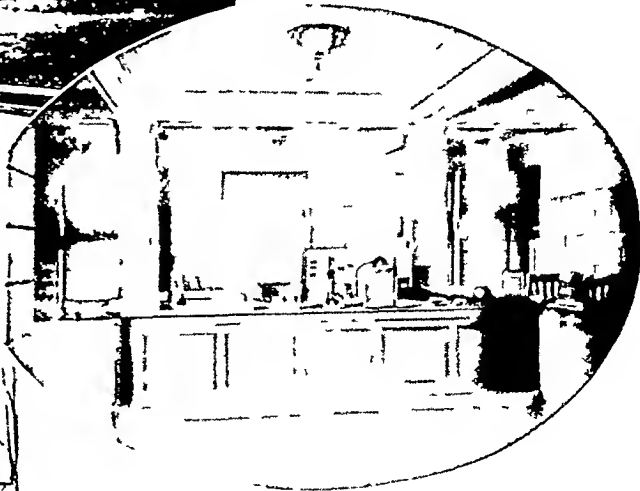
UNIVERSITY OF KANSAS HOSPITAL  
CHILDREN'S PAVILION NOW  
UNDER CONSTRUCTION



ST JOSEPH HOSPITAL



UNIVERSITY OF KANSAS  
BELL MEMORIAL HOSPITAL



LOBBY OF BELL MEMORIAL HOSPITAL

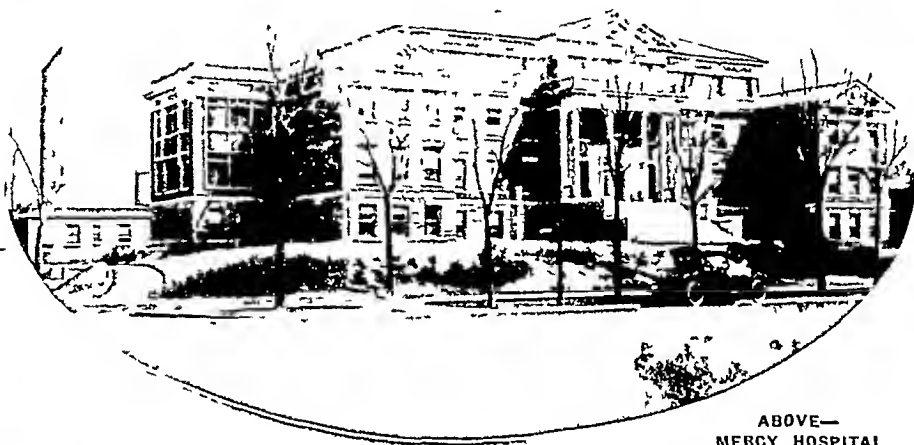


PROVIDENCE HOSPITAL

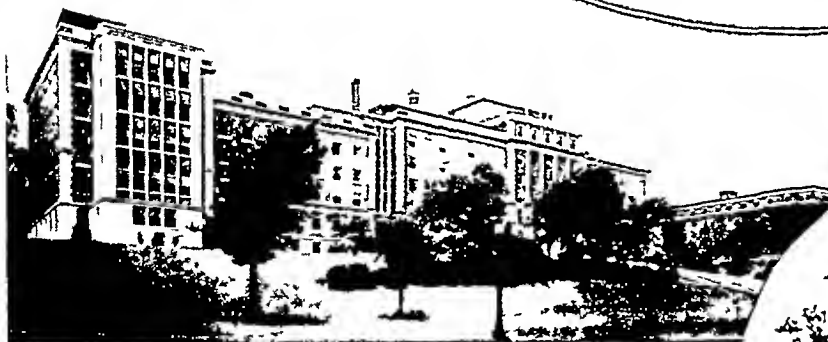


THE NEUROLOGICAL  
HOSPITAL

## Kansas City Hospitals

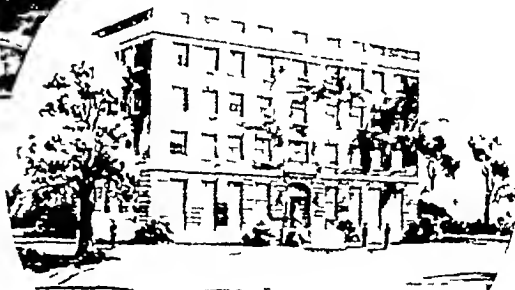


ABOVE—  
MERCY HOSPITAL



ST. LUKE'S HOSPITAL

BELOW—HIXON LABORATORY  
UNIVERSITY OF KANSAS  
HOSPITAL



THE RESEARCH HOSPITAL



## SPECIAL GROUPS

Officers and members of various examining boards and sections of the American Medical Association will be interested in the meetings of Kansas City's special groups including the Kansas City Academy of Medicine, Kansas City Dermatological Society, Kansas City Obstetrics and Gynecology Society, Kansas City Society of Ophthalmology and Otolaryngology, Kansas City Society of Pathologists, Kansas City Society of Pediatricians and the Kansas City Urological Society. These special interests hold weekly bimonthly or monthly meetings for the purpose of studying interesting clinical cases, conducting special courses of instruction or entertaining guest speakers of special prominence in their particular fields.

CULTURAL AND RECREATIONAL  
FACILITIES IN KANSAS CITY

More than a hundred miles of beautifully landscaped drives at the height of their beauty in the late spring season await the convention visitor.

Cliff Drive to the northeast of the city retains the natural scenic beauty and charm of a winding drive through the mountains with Budd Park inviting relaxation and an occasional distant view of Kansas City serving as a reminder of midwestern enterprise.

Restful Penn Valley to the south home of The Scout and A. Phimster Proctor's sculptural group. The Pioneer Mother forms a picturesque link between down-town Kansas City and its outlying shopping areas.

When seen after night the Liberty Memorial is a sight of majestic power and a battery of blue lights directed on a series of fountains presents a kaleidoscopic picture of mystical beauty with all Kansas City's vast skyline unfolding when viewed from this 537 foot height. All this however is in sharp contrast to the wealth of war trophies, weapons, communications and factual information contained within the memorial, a collection that merits several hours of browsing.

Ample opportunity for outdoor sports is afforded in Kansas City's Swope Park—the third largest municipal playground in the world. Its 1,400 acres of rustic woodland, three golf courses, tennis courts, picnic grounds, shelter houses, natural footpaths, outdoor animal pits, zoo and lagoon for swimming and boating afford interest and entertainment for groups of all ages and tastes.

It has been said that the index to any city may be found in its homes. If this is true, a few hours spent in exploring Kansas

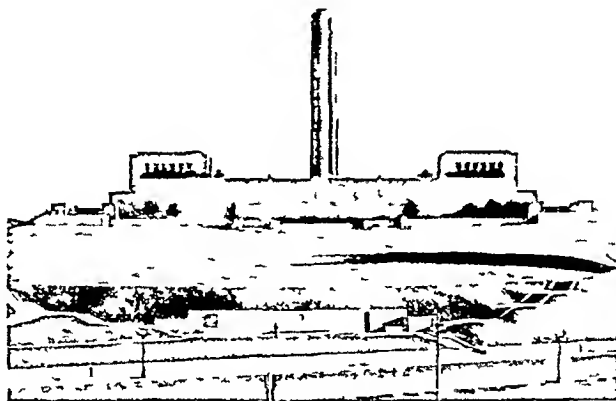
City's country club district justifies its claim to the most important high type residential development in the world, and the largest contiguous restricted district to be found in the United States.

Served by the Country Club Plaza, ever seasonable and festive in its decoration and Spanish in its architecture, this outlying shopping area constitutes a complete and beautiful miniature city in itself, served by its own residential parks, golf course, playgrounds and shopping centers.

Those with cultural interests will want to explore the building and grounds of Kansas City's rapidly growing five year old

University of Kansas City and feast on the spacious grounds and classic architecture of the William Rockhill Nelson Gallery of Art.

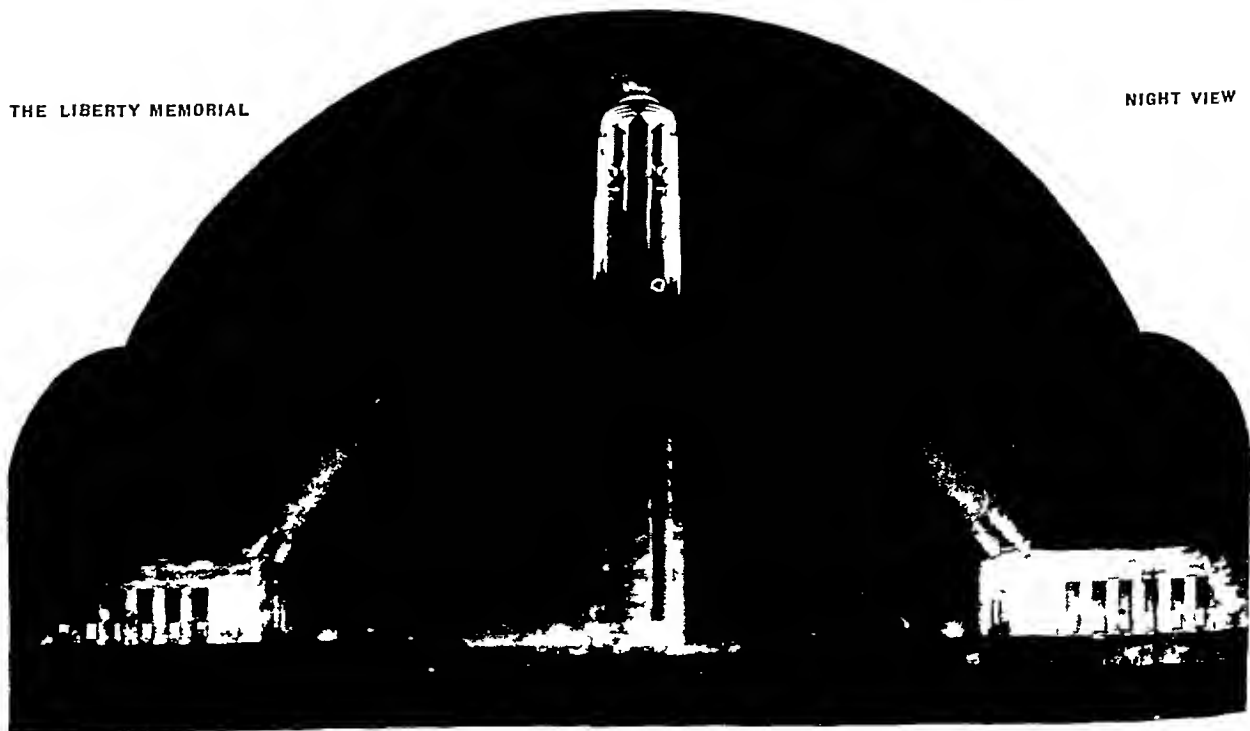
Made possible by the bequests of William Rockhill Nelson, the founder of the Kansas City Star, the gallery is erected on the grounds of Mr. Nelson's former residence, Oak Hill, and the dignity and scientific construction of the building itself bespeak the wide variety and tremendous value of the rapidly growing collection within. More than 5,000 objects of art from the earliest civilization of Asia Minor to contemporary twentieth century art are exhibited. A distinctive feature is the installation of original old panelings with complete furnishings of the period. These include an English Georgian drawing room, a French Regence Salon, a Spanish-Italian room and an American



KANSAS CITY'S LIBERTY MEMORIAL

THE LIBERTY MEMORIAL

NIGHT VIEW





wing of five interiors brought from various sections of the Atlantic coast

The department of paintings already ranks fifth among museums of the United States and includes works by Titian Tintoretto Veronese, Rembrandt Rubens Hals, El Greco, Velasquez, Goya Poussin Chardin, Boucher Greuze Millet, Gainsborough, Reynolds, Raeburn, Copley, West Stuart and Inness

The classical collection contains sculpture, bronze and pottery from Egypt, Greece and Rome and the Egyptian Hawk, Greek Lion and Statue of Roman Patrician are almost unique in America The department of the Near and Far East contains treasures from Persia India China and Japan that cannot be duplicated in the United States

#### INDUSTRIAL KANSAS CITY

All of this, however, is but a tribute to the enterprise of the industrialist Though nineteenth in size Kansas City ranks first as a primary winter wheat market, in the distribution of kafir corn and milo maize grain sorghum seeds and as a market for hay stocker and feeder cattle and cash grain Kansas City's stockyards and meat-packing industry are second only to those of Chicago Its importance as a manufacturing center is widely recognized, offering more than 875 establishments First in the manufacture of poultry stock and dairy feeds in

the distribution of agricultural implements and the manufacture of American black walnut this volume of agricultural business places Kansas City seventh in amount of bank clearings and eleventh in value of manufactured products

Downtown Kansas City with its new Jackson County Court House Post Office Power and Light Building broadcasting stations and famous 'Peticoat Lane' bespeak its commercial importance

The Power and Light Building with its television laboratories broadcasting station and lighting bureau containing all manner of devices for testing sight should prove of particular interest to the medical profession

If time will permit without neglecting the numerous opportunities for exploring the city itself a number of interesting side trips can be suggested These include Lawrence Kan home of the University of Kansas Spooner Thayer Museum and Haskell Institute and federal training school for Indians a distance of forty miles, Fort Leavenworth regular army post of Indian border and Civil War importance and home of the federal penitentiary national soldiers home and federal disciplinary barracks and Shawnee Indian Mission a pioneer educational institution established in 1830

An abundance of fish and game make the resort centers in the Ozark country irresistible to the sportsman

## TRANSPORTATION

### Railroad Rates to Kansas City

Special rates have been granted for the benefit of members of the American Medical Association and dependent members of their families who will attend the annual session at Kansas City

The Central the New England, the Southeastern the Southwestern the Transcontinental the Trunk Line and the Western Passenger Associations, as well as the Eastern Line of the Canadian Passenger Association have granted a rate of one and one-third fares

To have the benefit of a return rate of one third fare it will be necessary for each member to secure a CERTIFICATE from the railroad ticket agent when he purchases his ticket to Kansas City The certificate must be certified to by the Secretary of the American Medical Association which may be done at the Registration Bureau to be located in the Kansas City Municipal Auditorium and must then be validated by a

Passenger Association and in the territories of the Central Passenger Association the Southeastern Passenger Association and the Trunk Line Association, from Arkansas Kansas Louisiana and Missouri as well as Natchez Miss and



FLYING TO KANSAS CITY



THE KANSAS CITY UNION STATION

representative of the railroads When the certificate is so certified and validated it will entitle its holder to purchase a return ticket to his home over the same route traveled to Kansas City, at one third fare

If the ticket agent at the member's home station does not have the certificate he will furnish information as to where and how it may be obtained

The certificate is not a receipt for money paid for a ticket nor will a receipt entitle its holder to secure a return trip ticket at a reduced rate Be sure to ask the ticket agent for a CERTIFICATE

The dates of sale of tickets to Kansas City will be May 7 to 13 in the territory of the Eastern Lines of the Canadian

Memphis Tenn in the territory of the Southwestern Passenger Association and from Illinois Iowa Kansas Manitoba Minnesota Missouri Nebraska northern Michigan North Dakota South Dakota and Wisconsin as well as Julesburg, Colo in the territories of the Transcontinental and Western Passenger Association

The dates of sale of tickets in the territory of the New England Passenger Association will be May 6 to 12 In the territories of the Southwestern Transcontinental and Western Passenger Associations the dates of sale of tickets from Colorado (except Julesburg) New Mexico (east of and including El Paso and Albuquerque) Oklahoma Texas and Wyoming will be May 6 to 12 and from Arizona British Columbia, California Idaho Montana Nevada New Mexico (west of Albuquerque and El Paso), Oregon Utah and Washington May 5 to 12

Certificates properly certified and validated will be honored for purchasing tickets for the return journey at one-third fare up to and including May 19 No refund of fare will be made on account of failure to present validated certificate when purchasing return ticket The return ticket must be used over the same route as that traveled going to Kansas City

When you purchase your ticket to Kansas City secure from the railroad ticket agent a CERTIFICATE which, when properly certified to and validated will entitle you to purchase a return ticket to your home over the same route traveled to Kansas City at one-third the fare paid to Kansas City

BE SURE TO ASK YOUR RAILROAD TICKET AGENT FOR A CERTIFICATE WHEN PURCHASING YOUR TICKET TO KANSAS CITY

Special Trains

The Burlington Railroad on the nights of May 10 and 11 will operate special modern Pullmans from Chicago to Kansas City for members of the American Medical Association their families and friends

The "American Royal" one of the Burlington's finest trains leaves the Union Depot Chicago at 7 p m and arrives at

Kansas City at 8 50 a m, Central Standard Time For reservations please communicate with Mr S J Owens, Burlington Railroad, 179 West Jackson Boulevard Chicago

Air Travel

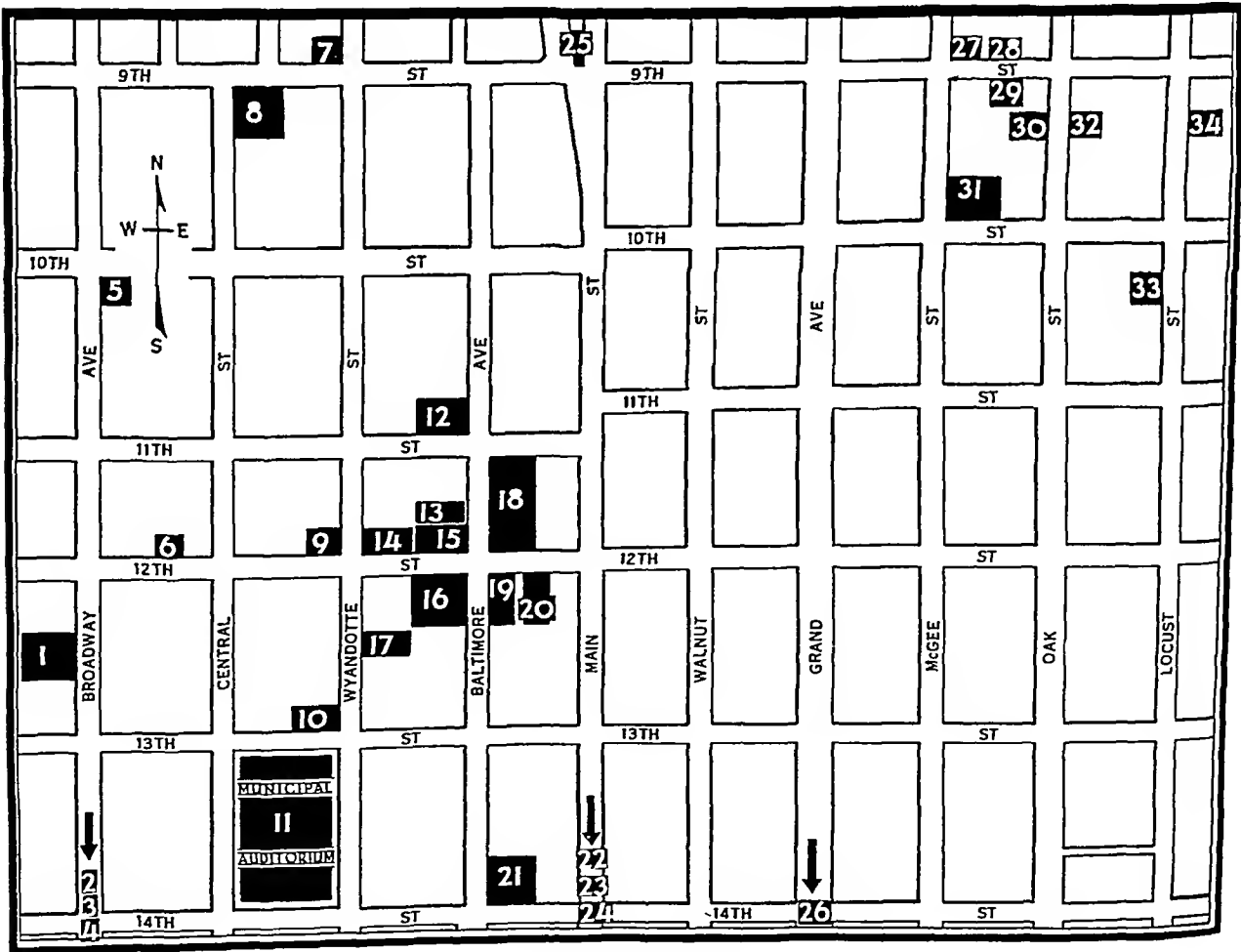
The Transcontinental and Western Air Inc announces air service to Kansas City in fourteen-passenger Douglas skyliners each containing a crew of three This service may be secured from Philadelphia, Pittsburgh Indianapolis St Louis and Columbus Ohio, as well as from Los Angeles Albuquerque N M Amarillo, Texas and Wichita Kan Passengers from New England may make connections at New York passengers from Michigan and Ohio at Chicago Local representatives may be consulted concerning discounts and savings in the use of script Meals will be served complimentary

REGISTRATION

The Bureau of Registration will be located in the Kansas City Municipal Auditorium, Fourteenth Street between Wyandotte and Central streets Members of the Subcommittee on Registration of the Local Committee on Arrangements will be

on hand to assist those who desire to register A branch post office in charge of government postoffice officials will be available for visitors and an information bureau will be operated in connection with the Bureau of Registration

MAP OF KANSAS CITY, MO



KEY TO MAP

Aladdin	17	Drake	33	Vuehlebach	8
Ambassador	2	Frederic	28	Phillips	70
Baltimore	18	GLD tone	29	Pickwick	37
Bellerive	26	Kansas Citian	12	Plaza	14
Bray	13	Kansas City Municipal Audi	11	President	34
Broadmoor	30	torium	3	Puritan	24
Coates House	1	Locarno	6	Rasbach	9
Commonwealth	19	Missouri	22	Riviera Apartments	21
Dixon		Montro e		Robt E Lee	7
				Savoy	
				Sexton	
				Snyderhof	
				Stats	
				Tanner	
				Union Station	
				Victoria	
				Westgate	

### Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have on the prescribed form applied for Fellowship subscribed to THE JOURNAL and paid their Fellowship dues for the current year. The annual Fellowship dues provide a subscription to THE JOURNAL for one year. Fellowship cards are sent to all Fellows after payment of annual dues and these cards should be presented at the registration window. Any who have not received cards for 1936 should secure them at once by writing to the American Medical Association 535 North Dearborn Street Chicago.

### Members in Good Standing Eligible to Fellowship in the Association

Members in good standing in component county medical societies are members of constituent state associations and of the American Medical Association. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Kansas City so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1936 should write to the American Medical Association for application blanks and information as to further requirements.

### Register Early

Fellows living in Kansas City as well as all other Fellows who are in Kansas City on Monday and Tuesday should register as early as possible. The names of those who register will appear in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends if they have registered.

### Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration cards should be written plainly or printed, as the cards are given to the printer to use as copy for the *Daily Bulletin* published on Tuesday Wednesday Thursday and Friday of the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card together with their pocket cards at one of the windows marked Registration by Pocket Card. There the clerk will compare the two cards stamp the pocket card and return it and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association 535 North Dearborn Street Chicago so that their Fellowship may be entered not later than April 20. Any applications that are received later than April 20 will be given prompt attention but the Fellowship pocket card may not reach the applicant in time for him to register at the Kansas City session.

It will be possible for members of the organization to qualify as Fellows at Kansas City. In order to do this applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Kansas City bring with them their state membership cards for 1936. The state membership card should be presented along with the filled in *blue* registration card at the window in the booth marked Applicants for Fellowship and Invited Guests.

As already stated registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

### Registration for General Officers and Delegates at the Hotel Muehlebach

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly at a booth near the Ballroom of the Hotel Muehlebach. This arrangement is made for the convenience of the members of the House of Delegates which will convene on Monday morning at 10 o'clock in the Ballroom of the Hotel Muehlebach. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning May 11, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

### KANSAS CITY HOTELS

A list of Kansas City hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association May 11-15. Dr. Ira H. Lockwood is chairman of the Subcommittee on Hotels of the Local Committee on Arrangements and may be addressed at 102b Baltimore Avenue Kansas City Mo. The advertising announcement and coupon for reservations appear on advertising page 99 of this issue.

Name and Address	Room—One Person		Room—Two Persons	
	Without Bath	With Bath	Without Bath	With Bath
ALADDIN 1213 Wyandotte		\$2 00-\$2 50		\$4 00-\$5 00
AMBASSADOR S. W. Broadway and Knickerbocker Place		2 50		3 50-4 00
BALTIMORE 11th and Baltimore	\$1 00	3 00-4 00	2 50	4 00-10 00
BELLERIVE 214 East Armour		3 00		4 00-5 00
BRAY 1114 Baltimore Avenue	1 50	1 75-2 50	2 50	3 00-5 00
BROADMOOR 916 Oak		1 50-2 00		2 00-2 50
COATES HOUSE 10th and Broadway	1 50	2 00	2 50-3 00	3 50-4 00
COMMONWEALTH 1216 Broadway		2 50-3 00		3 50-7 00
DIXON 12th and Baltimore		2 50-3 50		3 00-10 00
DRAKE 1016 Locust		1 50		2 50
FREDERIC 312 East 9th		1 00		1 50
CLADSTONE 319 East 9th	1 00	1 50	1 00	2 00-3 50
KANSAS CITIAN N. W. 11th and Baltimore		2 00-6 00		4 50-8 00
LOCARNO 235 Ward Parkway				1 00
MISSOURI 310 West 12th	1 00	1 50-2 00	1 50	2 00-3 00
MONTROSE 40th and Main		2 00		3 00
MUEHLEBACH 12th and Baltimore		3 00-6 00		4 50-8 00
PHILLIPS N. W. 12th and Baltimore		2 50-4 00		4 00-6 00
LICKWICK 10th and McGee		2 50-3 50		3 50-5 00
PLAZA 15 East 24th	1 50	2 50	2 50	3 50-4 00
RESIDENT 14th and Baltimore		2 00		4 00-5 00
PUKITTAN 9th and Wyandotte	1 00	1 50-2 00	1 50	2 00-2 50
RASCH 1116 Wyandotte	1 25-2 00	1 50-2 00	2 00-4 00	2 50-3 00
RIVIERA APARTMENTS 229 Ward Parkway				4 00
ROBT. E. LEE 15th and Wyandotte		2 00-2 50		3 00-5 50
SAVOY 9th and Central	1 00	1 50	1 50	2 50-4 00
SEXTON 15 West 12th	1 00	2 00-3 00	2 50	3 50-4 00
SYDERHOF 917 Oak		2 00		2 50-4 00
STATS 12th and Wyandotte		2 50-4 00		3 50-6 00
TANNER 917 Locust	1 50	2 00	2 50	3 00
VICTORIA N. E. 9th and McGee	1 50	1 50	1 50	2 00
WESTGATE Main and Delaware at 9th		1 50		2 50-3 00

## GENERAL SCIENTIFIC MEETINGS

Music Hall, Municipal Auditorium

MONDAY, MAY 11—2 P M

Present Status of Trans-urethral Resection of Prostate

HERMON C BUMPUS JR, Pasadena, Calif

New and Nonofficial Remedies of the Year

PAUL NICHOLAS LEECH Chicago

The Diagnosis and Treatment of Tumors of the Lung

WILLIAM F RIENHOFF JR, Baltimore

Treatment of Chronic Rheumatoid Arthritis

W PAUL HOLBROOK, Tucson, Ariz

TUESDAY MAY 12—9 30 A M

Injuries of the Hands

SUMNER L KOCH, Chicago

Recent Advances in the Study of Viruses and Virus Diseases

THOMAS M RIVERS, New York

Surgery of the Sympathetic System JAMES C WHITE, Boston  
Snake Poison AFRANIO DO AMARAL, São Paulo, Brazil

TUESDAY, MAY 12—2 P M

The Management of the Treatment of Gonococccic Infection by  
Prolonged Artificial Fever at 41.5 C (106.7 F)

STAFFORD L WARREN, Rochester, N Y

Facts and Fallacies of Organotherapy

ANTON J CARLSON, Chicago

The Bone Marrow

RICHARD H JAFFE, Chicago

Thyrototoxicosis

LORD HORDER, London, England

Motion Picture Forceps Operation

JOSEPH B DE LEE, Chicago

## MEETING PLACES

HOUSE OF DELEGATES Ballroom of the Hotel Muchlebach,  
Twelfth and Baltimore

OPENING GENERAL MEETING North Half of Arena, Municipal Auditorium

GENERAL SCIENTIFIC MEETINGS Music Hall, Municipal Auditorium

## SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE North Half of Arena, Municipal Auditorium

SURGERY, GENERAL AND ABDOMINAL Music Hall Municipal Auditorium

OBSTETRICS GYNECOLOGY AND ABDOMINAL SURGERY Music Hall Municipal Auditorium

OPHTHALMOLOGY Little Theater Municipal Auditorium

LARYNGOLOGY OTOTOLOGY AND RHINOLOGY Little Theater, Municipal Auditorium

PEDIATRICS North Half of Arena Municipal Auditorium

PHARMACOLOGY AND THERAPEUTICS Outside Committee Room, Wyandotte Street Side, Fourth Floor, Municipal Auditorium

PATHOLOGY AND PHYSIOLOGY Outside Committee Room Wyandotte Street Side, Fourth Floor, Municipal Auditorium

NERVOUS AND MENTAL DISEASES Assembly Room, Sixth Floor, Municipal Auditorium

DERMATOLOGY AND SYPHILOLOGY Inside Committee Room, Fourth Floor, Municipal Auditorium

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH Congress Room Hotel President, Fourteenth and Baltimore

UROLOGY Inside Committee Room, Fourth Floor, Municipal Auditorium

ORTHOPEDIC SURGERY Assembly Room, Sixth Floor, Municipal Auditorium

GASTRO ENTEROLOGY AND PROCTOLOGY Congress Room, Hotel President Fourteenth and Baltimore

RADIOLOGY Inside Committee Room, Fifth Floor, Municipal Auditorium

MISCELLANEOUS TOPICS SESSION ON TUBERCULOSIS Inside Committee Room, Fifth Floor, Municipal Auditorium

GENERAL HEADQUARTERS, SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, TECHNICAL EXHIBITS, INFORMATION BUREAU AND BRANCH POSTOFFICE Municipal Auditorium

The Municipal Auditorium is located at Fourteenth Street between Wyandotte and Central streets

## LOCAL COMMITTEE ON ARRANGEMENTS

EDWARD HOLMAN SKINNER Chairman

JAMES R McVAY, Coordinating Chairman

FRANK R TEACHEVOR, Vice Chairman

EDWIN HENRY SCHORER, Vice Chairman

FRANK D DICKSON Vice Chairman

MORRIS B SIMPSON Secretary

J F HASSIG, Treasurer

## SUBCOMMITTEES

Sections and Section Work Rex L Diveley, Chairman  
Practice of Medicine P T Bohan, Chairman J V Bell, Secretary

Surgery General and Abdominal C C Nesselrode, Chairman John H Ogilvie Secretary

Obstetrics Gynecology and Abdominal Surgery H F VanOrden Chairman P A Gempel, Secretary

Ophthalmology R J Curdy Chairman, A N Lemone, Secretary

Laryngology, Otology and Rhinology A J Lorie Chairman Homer A Beal Secretary

Pediatrics Joseph B Cowherd Chairman John Aull, Secretary

Pharmacology and Therapeutics William W Duke Chairman W Merritt Ketcham Secretary

Pathology and Physiology Emsley T Johnson Chairman Ralph E Duncan Secretary

Nervous and Mental Diseases E T Gibson, Chairman, Marvin L Bills Secretary

Dermatology and Syphilology William L McBride Chairman R L Sutton Jr Secretary

Preventive and Industrial Medicine and Public Health J Harvey Jennett Chairman W H Hines, Secretary

Urology N F Ockerblad Chairman, Clinton K Smith Secretary

Orthopedic Surgery C B Francisco, Chairman, H Lewis Hess Secretary

Gastro-Enterology and Proctology George E Knappenberger Chairman, A C Clasen Secretary

Radiology C Edgar Virden, Chairman, D S Dann Secretary

Registration J E Castles Chairman

Technical Exhibits Max Goldman Chairman

Scientific Exhibit H R Wahl Chairman

Hotels Ira H Lockwood, Chairman  
Printing and Badges Albert S Welch, Chairman  
Information L F Barney, Chairman  
Publicity A Morris Ginsberg, Chairman  
Finance J F Hissig, Chairman  
Women Physicians Mary J Lower, Chairman  
Transportation M W Pickard, Chairman  
Entertainment  
Dinner to Delegates James R McVay, Chairman  
Opening General Meeting Frank R Teachenor, Chairman  
Edwin Henry Schorer, Vice Chairman  
Ushers J Milton Singleton, Chairman  
President's Reception and Ball Raymond E Teall, Chairman  
Golf Clarence S Capell, Chairman E R Deweese, Vice Chairman  
Alumni Dinners Hermon S Major, Chairman  
Fraternity Luncheons Harry M Gilkey, Chairman  
Trap Shooting A W McAlester 3d, D D Stofer  
Service Clubs M A Hanna

Woman's Auxiliary Mrs Herbert L Mantz, Chairman,  
Mrs George H Thiele, Secretary, Mrs Harry C Lapp,  
Treasurer, Mrs Marvin L Bills, Assistant  
Chairmen of Subcommittees  
Entertainment Mrs A W McAlester, Mrs C C Dennie  
Exhibits Mrs Harrison C Tripp  
Flowers Mrs Ralph Emerson Duncan  
Hostesses at Hotels Mrs Thomas G Orr, Mrs E D  
Twyman  
House Mrs Ralph Holbrook  
Music Mrs H Lewis Hess  
Press and Publicity Mrs Herbert S Valentine, Mrs  
Wilbur A Baker  
Printing and Supplies Mrs F L Feierabend, Mrs H J  
Rinkel  
Registration Mrs Ira H Lockwood, Mrs Patrick H  
Owens  
Reservations Mrs Evan S Connell, Mrs Damon Walthall  
Tickets Mrs James E Stowers, Mrs Joseph Welker  
Transportation Mrs E Lee Miller, Mrs D D Stofer

## ENTERTAINMENT

### Dinner for Delegates and Officers

The Local Committee on Arrangements has arranged for a dinner and entertainment for the delegates and officers of the American Medical Association in the Banquet Hall of the Hotel Muehlebach, Monday evening, May 11. Cocktails at 6:30 and dinner at 7 o'clock.

### Luncheon for Delegates

There will be a luncheon for the officers and members of the House of Delegates of the American Medical Association in the Trianon Cafe of the Hotel Muehlebach, Tuesday noon, May 12.

### Opening General Meeting

The Opening General Meeting will be held in the north half of the arena of the Municipal Auditorium at 8 o'clock, Tuesday, May 12.

### President's Reception

There will be a reception and ball in honor of the President of the American Medical Association Thursday evening, May 14, at 9 o'clock, in the Ballroom of the Hotel Muehlebach.

### Dinner for Women Physicians

There will be a dinner for women physicians of the American Medical Association at 6:30 p.m. Wednesday, May 13, at the Hotel Newbern.

### American Board of Obstetrics and Gynecology

The annual informal dinner and general conference of Diplomates of the American Board of Obstetrics and Gynecology will be held at the Hotel Kansas Citian, Wednesday, May 13, at 7 o'clock. Tickets may be secured at the door or by writing Dr Joseph L Baer, 104 South Michigan Avenue, Chicago.

### Alpha Omega Alpha Dinner

The Alpha Omega Alpha Dinner will be held at 6 o'clock Thursday, May 14. Dr A J Carlson of the University of Chicago will speak on Trends in Modern Medical Education. Reservations at \$2 a plate may be secured by addressing Dr Carl Ferris, Hotel Muehlebach, Kansas City, Mo. Ladies are invited.

### "Bring-Your-Husband" Dinner

The Woman's Auxiliary has arranged for the annual 'Bring-Your-Husband' Dinner in the Pompeian Room of the Hotel Baltimore at 6 o'clock, Thursday, May 14. Dr C C Dennie will be master of ceremonies and excellent entertainment has been secured. Tickets are \$2 each.

### Alumni Dinners

The Subcommittee on Alumni Dinners, of which Dr Hermon S Major is chairman, announces that alumni dinners will be held on the evening of Wednesday, May 13, as follows:

ST LOUIS UNIVERSITY MEDICAL SCHOOL, Pompeian Room, Hotel Baltimore. A B Sinclair, chairman.

BARNES MEDICAL COLLEGE, Francis I Room, Hotel Baltimore. Solon E Haynes, chairman.

UNIVERSITY OF KANSAS MEDICAL SCHOOL, Walnut Room, Hotel President. Donald R Black, chairman.

UNIVERSITY MEDICAL COLLEGE, Aztec Room, Hotel President. Ambrose E Eubank, chairman.

CREIGHTON UNIVERSITY MEDICAL SCHOOL, Cabinet and Colonial Dames Room, Hotel President, W J Feehan, chairman.

WASHINGTON UNIVERSITY MEDICAL SCHOOL, Roof Garden. Kansas City Club. B Landis Elliott, chairman.

UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL, Room J, University Club, Radford F Pittam, chairman.

JEFFERSON MEDICAL COLLEGE, East Roof, Hotel Kansas Citian. Herbert L Mantz, chairman.

RUSH MEDICAL COLLEGE, University of Chicago, Trianon Cafe, Hotel Muehlebach. 6:30 p.m. Graham Asher, chairman. Reservations at \$2 a plate may be secured by addressing Dr John G Hayden, Hotel Muehlebach, Kansas City, Mo. Ladies are invited.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Frederick. C Lamar, chairman.

JOHNS HOPKINS SCHOOL OF MEDICINE. James E Stowers, chairman.

HARVARD UNIVERSITY MEDICAL SCHOOL, Harry C Lapp, chairman.

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, Alton L Kelly, chairman.

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, Charles H Wyatt, chairman.

STANFORD UNIVERSITY SCHOOL OF MEDICINE, M C Davis, chairman.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, Ralph R Coffey, chairman.

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, R W Anderson, chairman.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Harry M Gilkey, chairman.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, W E Keith, chairman.

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, Cecil E Hissig, chairman.

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, Charles F Lowry, chairman.

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, Walter Holbrook, chairman.

### Fraternity and Group Luncheons

The subcommittee in charge of fraternity luncheons under the chairmanship of Dr Harry M Gilkey announces that fraternities will have luncheons on Wednesday noon, May 13, as follows:

ALPHA MU PI OMEGA, Hotel Kansas Citian. Pat Dunn, chairman.



ALPHA KAPPA KAPPA, Hotel President, David Braden, chairman

OMEGA UPSILON PHI Hotel Kansas Citian, C K Smith and John Bouslog chairmen

PHI CHI, Hotel Baltimore Ralph Emerson Duncan chairman

NU SIGMA NU, Hotel President, E H Hashinger, chairman

PHI ALPHA SIGMA, Hotel Kansas Citian, E P Heller, chairman

PHI RHO SIGMA, Hotel President Ralph Perry, chairman

PHI BETA PI Hotel Kansas Citian, Orval Withers, chairman

THETA KAPPA PSI, Hotel Kansas Citian, Herluf Lund, chairman

PHI DELTA EPSILON, Hotel Kansas Citian, L M Shapiro chairman

ALPHA EPSILON IOTA, Hotel President, Loraine Sherwood chairman

The 'Get-to-Gether' luncheon of the Federation of American Sanatoria will be served at 12 30 p m Tuesday, May 12 at the Hotel Kansas Citian. The administrative session will take place at the Hotel Ambassador on Monday, May 11.

The luncheon for the Associated Diplomates of the National Board of Medical Examiners will be held at the Hotel President Thursday, May 14, at 12 30 p m.

## WOMAN'S AUXILIARY

### SUNDAY, MAY 10

4 to 7 p m Tea for National Board honoring Mrs R V Herbert given by Board of Jackson County Woman's Auxiliary assisted by officers of Woman's Auxiliaries to Wyandotte and Clay counties. Home of Mrs C C Denme.

### MONDAY, MAY 11

10 to 12 National Board meeting, Francis I Room, Hotel Baltimore.

12 30 to 2 National Board Luncheon at Woman's City Club. Mrs George Hovic and Mrs A B McGlothlan hostesses.

2 to 3 30 National Board meeting, continued.

4 p m Drive and tea (complimentary).

7 p m Dinner honoring founders officers and presidents of Woman's Auxiliaries to Missouri and Kansas \$1 50. Kansas City Country Club.

### TUESDAY MAY 12

8 a m Southern Breakfast, Hotel Baltimore \$1.

9 a m General Session of Woman's Auxiliary to A M A, Francis I Room Hotel Baltimore.

12 30 to 2 Luncheon honoring past presidents of National Auxiliary, Renaissance Room, Hotel Baltimore \$1 25.

2 30 to 3 30 Conference Groups, Hotel Baltimore, Mezzanine Floor.

3 45 to 5 30 Drive and Teas (complimentary).

8 p m Opening General Meeting at Auditorium.

### WEDNESDAY, MAY 13

9 to 12 General Session Francis I Room Hotel Baltimore.

12 30 to 3 Annual Luncheon, Pompeian Room, Hotel Baltimore, Perry Bromberg, speaker \$1 50.

3 30 to 5 30 Drive and Teas (complimentary).

8 to 10 p m Gallery Walk, William Rockhill Nelson Gallery of Art.

8 to 9 Lecture "Silver."

### THURSDAY, MAY 14

10 a m Postconvention board meeting.

12 30 to 3 Luncheon, Woman's City Club, Tom Collins, speaker \$1.

7 p m 'Bring-Your-Husband Dinner, Pompeian Room, Hotel Baltimore \$2.

9 p m President's Ball and Reception Hotel Muehlebach.

### FRIDAY MAY 15

Forenoon Golf Mrs C R McCubbin, chairman, or Tours.

1 p m Luncheon at Country Club (Probably Blue Hills \$1).

## WOMEN PHYSICIANS

The headquarters of women physicians will be at the Hotel Newbern. Marie Esmond is chairman of the local committee on arrangements. Elvener Ernest, coordinating chairman and Mary J Lower vice chairman.

The following program has been arranged:

### SUNDAY, MAY 10

9 a m Registration.

10 a m Meeting of the Board of Directors.

1 p m Luncheon Greetings from the Local Committee of Missouri.

3 p m Trip in sightseeing bus.

7 p m Dinner Bertha Van Hoosen (Illinois) presiding. 'Our Medical Authors'.

### MONDAY MAY 11

10 a m General meeting of the association.

1 p m Luncheon Mabel E Gardner (Ohio) presiding. 'The Woman Physician Has She Arrived'.

3 p m Trip in sightseeing bus.

7 p m Dinner (inaugural) S Josephine Baker (New York) presiding.

### TUESDAY, MAY 12

9 a m Meeting of new board of directors.

10 a m General meeting.

1 p m Luncheon Frances Eastman Rose (Washington) presiding. Topic to be announced. Adjournment.

## GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-second annual tournament at the Mission Hills and the Kansas City Country Clubs in Kansas City on Monday May 11.

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship thirty-six holes gross the Will Walter Trophy the Association Handicap Championship thirty-six holes net, the Detroit Trophy the Championship Flight First Gross thirty-six holes the St. Louis Trophy the Championship Flight First Net thirty-six holes the President's Trophy the Eighteen Hole Championship the Golden State Trophy the Eighteen Hole Handicap

Championship the Ben Thomas Trophy the Maturity Event, limited to Fellows over 60 years of age the Minneapolis Trophy the Oldguard Championship limited to competition of past presidents the Wendell Phillips Trophy, and the Kickers Handicap the Wisconsin Trophy. Other events and prizes will be announced at the first tee.

### MEMBERS IN EVERY STATE OF THE UNION

M M Cullom of Nashville Tenn is president and W Albert Cook of Tulsa Okla and Walt P Conaway of Atlantic City N J are vice presidents of the American Medical Golfing Association which was organized in 1915 by Will Walter.

Wendell Phillips and Gene Lewis, and now totals 1150 members, representing every state in the Union. The living past presidents include Thomas Hubbard of Toledo Ohio, Fred Bailey of St Louis, Edward Martin of Media Pa, Robert Moss of LaGrange Texas, Charlton Wallace of New York, Will Walter of Chicago and Charlottesville Va, James Eaves of Oakland Calif, D Chester Brown of Danbury, Conn, Samuel Childs of Denver, W D Shelden of Rochester, Minn, Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frial A Kelly of Detroit, John Welsh Crosley of Philadelphia, Homer K Nicoll of Chicago and Charles Lulens of Toledo.

#### KANSAS CITY COMMITTEE

The Kansas City Committee is under the general chairmanship of Clarence Capell, Rialto Building Kansas City Mo. He will be assisted by E R Deweese Vice Chairman and L G Allen J Wallace Beil C D Cantrell, Logan Clendenning, C C Dennie, Hugh A Gestring, A C Griffith John S Knight, T A Kyner A W McAlester Jr, Virgil W McCarty, C R McCubbin C A McGuire C J Mullen Paul J OConnell, A J Rettenmaier, H M Roberts E Kip Robinson C E Sanders, J S Snider, Albert S Welch and D A Williams.

#### TWO COURSES

To accommodate comfortably the large entry that is anticipated, the Kansas City Committee has arranged play over two very fine courses which touch corners the Mission Hills Country Club and the Kansas City Country Club. Their club houses are only one mile apart and ample transportation between the two has been arranged. Dinner for all players will be served in the Mission Hills Club House.

#### APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A M

G A. Write the executive secretary Bill Burns 2020 Olds Tower, Lansing Mich, for an application blank. Participants in the A M G A tournament are required to furnish their home club handicap signed by the secretary. No handicap over 30 is allowed except in the Kickers (Blind Bogey). Only active members of the A M G A may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty-second tournament of the American Medical Golfing Association promises to be a happy affair. The officers anticipate that some two hundred medical golfers from all parts of the United States will play.

#### SKEET AND TRAP SHOOT

The American Medical Skeet and Trap Shooters Association has been formed by a group of Kansas City physicians and it is hoped that the organization will be permanent. On the afternoon of May 10 there will be a Skeet and Trap Shoot at Elliott Gun Park.

Trap shoot—fifty sixteen yard targets

Class A, 94 per cent

Class B, 89 per cent

Class C, 84 per cent

Skeet shoot—fifty targets

Class A, 21 to 25

Class B 17 to 21

Class C 16 or below

A trophy will be given for each class. Our transportation will leave from the Hotel President at 1 o'clock May 10. Address all correspondence to Dr A W McAlester III, 2003 Bryant Building Kansas City Mo. or to Dr Dar Stofer, Professional Building, Kansas City Mo.

Bring your shotguns as well as your golf clubs.

## PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

### PROGRAM OF THE OPENING GENERAL MEETING

North Half of Arena, Municipal Auditorium

Tuesday, May 12, 8 p m

Music

Call to Order by the President, JAMES S McLESTER

Invocation BISHOP ROBERT NELSON SPENCER

Welcome to Kansas City

HON BRUCE B SMITH Mayor of Kansas City

FRANK R TEACHENOR President Jackson County Medical Society

HON GUY B PARK, Governor of Missouri

ROSS A WOOLSEY President Missouri State Medical Association

PAUL M KRALL, President Wyandotte County Medical Society

HOWARD L SNIDER President Kansas Medical Society

HON ALFRED M LAMBON Governor of Kansas

Announcements EDWARD H SKINNER Chairman Local Committee on Arrangements

Music

Introduction and Installation of President-Elect J TATE MASON Seattle

Address J TATE MASON

Presentation of Medal to Retiring President JAMES S McLESTER ROCK SLEYSER Chairman of the Board of Trustees

### THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program nor is the list complete. The Official Program will be similar to the pro-

grams issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of Kansas City and other information. To prevent misunderstandings and protect the interest of advertisers it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

### SECTION ON PRACTICE OF MEDICINE

MEETS IN NORTH HALF OF ARENA MUNICIPAL AUDITORIUM

#### OFFICERS OF SECTION

Chairman—WILLIAM J KERR San Francisco

Vice Chairman—CLARENCE L ANDREWS Atlantic City N J

Secretary—JOSEPH T WELAN Cleveland

Executive Committee—C T STONL Galveston Texas GEORGE R MINOT Boston WILLIAM J KERR San Francisco

Wednesday May 13—9 a m

Von Recklinghausens Neurofibromatosis Unusual Clinical Manifestations in Sixteen Cases (Lantern Demonstration)

JOHN C SHARPF and RICHARD H YOUNG Omaha Discussion to be opened by W M KETCHAM Kansas City Kan and J J ELLER New York

The Regression and Disappearance of the Signs of Rheumatic Heart Disease (Lantern Demonstration)

EDWARD F BLAND T DUCKETT JONES and PAUL D WHITE Boston

The Frank Billings Lecture

GEORGE BLUMER New Haven Conn Undulant Fever Further Clinical and Epidemiologic Observations in Iowa (Lantern Demonstration)

A V HARDY Baltimore C F JORDAN Des Moines Iowa and I H BORTS Iowa City

Discussion to be opened by FRED E ANCI Kansas City Kan

**Practical Therapeutic Aspects of Helium Therapy (Lantern and Motion Picture Demonstration)**

ALVAN L BARACH, New York

Discussion to be opened by FRANCIS M RACKEMANN, Boston and C K MAYTUM Rochester, Minn

**Thursday, May 14—9 a m**

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS

**The Clinical Use and Dangers of Hypnotics (Lantern Demonstration)**

SOMA WEISS Boston

**Chairman's Address** WILLIAM J KERR San Francisco**The Clinical Use of Diuretics (Lantern Demonstration)**

JOSEPH M HAYMAN Jr, Cleveland

**Clinical Evaluation of Fever Therapy (Motion Picture Demonstration)**

STAFFORD L WARREN Rochester, N Y

**Notes on Treatment of Histolytica Infection in Man (Lantern Demonstration)**

W M JAMES, Panama, C Z

**Friday, May 15—9 a m****Election of Officers****The Etiology of Polyneuritis in the Alcoholic Addict (Lantern Demonstration)**

NORMAN JOLLIFFE and C N COLBERT, New York

**Oral Complications of Chronic Alcoholism Significance, Diagnosis and Treatment (Lantern Demonstration)**

M A BLANKENHORN, Cincinnati

Discussion on papers of DRs JOLLIFFE and COLBERT and DR BLANKENHORN to be opened by H B MULHOLLAND, University, Va, and W H SEBRELL, Washington D C

**Address** LORD HORDER, London, England**Effect of Coughing Straining Forced Breathing on Arterial and Intrathoracic Pressure in Man (Lantern Demonstration)**

R A WOODBURY, W F HAMILTON and H T HARPER Jr Augusta, Ga

Discussion to be opened by RALPH H MAJOR, Kansas City, Mo and L N KATZ, Chicago

**Hepatosplenography by Means of Stabilized Thorium Dioxide Sol (Lantern Demonstration)**

WALLACE M YATER and LAURENCE S OTELL, Washington D C

Discussion to be opened by LEO G RIGLER, Minneapolis

**Hypoparathyroidism The Treatment of Chronic Cases and an Explanation of 'Refractiveness' to Parathyroid Extract (Lantern Demonstration)**

R H FREYBERG, R L GRANT and M A ROBB Ann Arbor Mich

Discussion to be opened by JOSEPH C AUB Boston, and PETER T BOHAN, Kansas City, Mo

**SECTION ON SURGERY, GENERAL AND ABDOMINAL**

MEETS IN MUSIC HALL MUNICIPAL AUDITORIUM

**OFFICERS OF SECTION****Chairman**—HOWARD M CLUTE Boston**Vice Chairman**—WILLIAM F RIENHOFF Baltimore**Secretary**—HENRY W CAVE, New York**Executive Committee**—HAROLD BRUNN, San Francisco, JOHN L YATES, Milwaukee HOWARD M CLUTE, Boston**Wednesday, May 13—9 a m****Peritoneal Immunization (Lantern Demonstration)**

HERBERT L JOHNSON Boston

**The Management of Patients with Bleeding Peptic Ulcer (Lantern Demonstration)**

LEON GOLDMAN San Francisco

**Permanence of Cure Following Simple Closure of Ruptured Duodenal Ulcers (Lantern Demonstration)**

DONALD GUTHRIE, Sayre, Pa

**Treatment of Mechanical Ileus by Intestinal Stripping A Clinical and Experimental Study (Lantern Demonstration)**

ALTON OCHSNER and AMBROSE H STORCK, New Orleans

**Cholangiographic Demonstration of Biliary Dyssynergia and Other Obstructive Lesions of the Gallbladder and Bile Ducts (Lantern Demonstration)**

R RUSSELL BEST and N FREDERICK HICKEN, Omaha

**Imperforate Anus Bowel Opening into Urethra, Hypospadias Presentation of New Plastic Methods (Lantern Demonstration)**

HUGH H YOUNG, Baltimore

**Thursday, May 14—9 a m****Dynamic Tests in Thyrotoxicosis (Lantern Demonstration)**

WILLARD BARTLETT JR St Louis

**Alterations in Liver Function Associated with Hyperthyroidism (Lantern Demonstration)**

FREDERICK A COLLIER, Ann Arbor, Mich

**Hypoparathyroidism Following Operations for Hyperparathyroidism Due to Adenoma (Lantern Demonstration)**

ROY D McCLELL, Detroit

**Chairman's Address The Problem of Cancer of the Pancreas (Lantern Demonstration)**

HOWARD M CLUTE Boston

**Tumors of the Spinal Cord and Their Relation to Medicine and Surgery (Lantern Demonstration)**

WINCHELL MCK CRAIG Rochester, Minn

**Recent Progress in the Management of Cancer of the Rectum (Lantern Demonstration)**

RICHARD B CATTELL Boston

**Friday, May 15—9 a m****Election of Officers****The Apparent Influence of Hydrochloric Acid on Bone Growth in Fractures (Lantern Demonstration)**

NELSON W CORNELL and ALICE R BERNHEIM, New York

**Injuries of the Thoracic Viscera (Lantern Demonstration)**

DANIEL C ELKIN, Atlanta Ga

**The Treatment of Large Pulmonary Abscesses Report of Ten Cases (Lantern Demonstration)**

CLARENCE E BIRD, Louisville Ky

**The Indications and Limitations on About 150 Cases of Intrapleural Pneumolysis (Lantern Demonstration)**

GEORGE L STIVERS Fall River Mass

**Skin Grafting After Extensive Epithelial Loss, with Special Reference to That Following Burns (Lantern Demonstration)**

EARL C PADGETT Kansas City, Mo

**Plantar Warts, Flaps and Grafts**

VILRAY PAPIN BLAIR St Louis

**SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY**

MEETS IN MUSIC HALL MUNICIPAL AUDITORIUM

**OFFICERS OF SECTION****Chairman**—LYLE G McNEILE, Los Angeles**Vice Chairman**—WILLIAM J CARRINGTON, Atlantic City, N J**Secretary**—EVERETT D PLASS Iowa City**Executive Committee**—JOSEPH B DE LEE, Chicago, JAMES R McCORD, Atlanta, Ga LYLE G McNEILE Los Angeles**Wednesday, May 13—2 p m****The Blood in Normal Pregnancy (Lantern Demonstration)**

FRANK H BETHELL Ann Arbor, Mich

**Constriction Ring Dystocia (Lantern Demonstration)**

LOUIS RUDOLPH Chicago

**Vascular Collapse in Toxic Patients (Lantern Demonstration)**

FRED L ADAIR, Chicago and A B HUNT, Rochester, Minn

**Chorionepithelioma in Philadelphia (Lantern Demonstration)**

EDWARD A SCHUMANN and ADRIAN W VOFGELIN Philadelphia

**Carcinoma of the Cervical Stump (Lantern Demonstration)**

LEWIS C SCHEFFEY Philadelphia

**The Treatment of Carcinoma of the Cervix by the Combined Use of Relatively Small Amounts of Radium and High Voltage Roentgen Rays (Lantern Demonstration)**

DAVID R MURPHEY JR, Tampa Fla

**Thursday, May 14—2 p m****Scopolamine-Morphine Semimarcosis (So-Called Twilight Sleep)**

OTTO S KREBS, J L WULFF and HELMAN C WASSERMAN St Louis

**Three Years' Experience with Pentobarbital Sodium and Scopolamine in Obstetrics at the Evanston Hospital (Lantern Demonstration)**

CHARLES E GALLOWAY, Evanston, Ill

- Paraldehyde and Benzyl Alcohol  
HOWARD F KANE and GEORGE B ROTH, Washington,  
D C
- Analgesia in Labor Considered from the Points of View of  
Medicine and Psychology  
GERTRUDE NIELSEN, Oklahoma City
- Chairman's Address Trends in American Obstetrics During  
the First Third of This Century  
LYLE G MCNEILE, Los Angeles
- The Conservative Treatment of Abortion (Lantern Demon-  
stration)  
JAMES R REINBERGER and PERCY B RUSSELL JR, Mem-  
phis, Tenn

Friday, May 15—2 p m

- Election of Officers
- The Diagnosis and Classification of Menstrual Disturbances  
JOHN C BURCH G S McCLELLAN and CLAUD D  
JOHNSON, Nashville, Tenn
- The Operative Observations in Periodic Intermenstrual Pain  
LAWRENCE R WHARTON and ERLE HENRIKSEN, Balti-  
more
- The Diagnosis of Ectopic Pregnancy (Lantern Demonstration)  
ERWIN VON GRAFF, Des Moines, Iowa
- Cesarean Section in Los Angeles County  
WILLIAM BENBOW THOMPSON, Los Angeles
- Diabetes and Pregnancy HOWARD F WEST, Los Angeles
- Heart Disease and Pregnancy (Lantern Demonstration)  
JULIUS JENSEN, St Louis

## SECTION ON OPHTHALMOLOGY

MEETS IN LITTLE THEATER, MUNICIPAL AUDITORIUM

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Executive Committee—WILLIAM C FINNOFF,\* Denver,  
ARTHUR J BEDELL, Albany, N Y, JOHN GREEN, St Louis

Wednesday, May 13—9 a m

- Chairman's Address JOHN GREFF, St Louis
- Tumors of the Eyelids A Clinical and Pathologic Study (Lan-  
tern Demonstration)  
C S O'BRIEN and A E BRALEY, Iowa City  
Discussion to be opened by ARNOLD KNAPP and ALGER-  
NON B REESE, New York
- Adenocarcinoma of the Orbit (Lantern Demonstration)  
WILLIAM L BENEDICT, Rochester Minn  
Discussion to be opened by MARTIN COHEN, New York,  
and WALTER E CAMP, Minneapolis
- Causes of Blindness in Pennsylvania from the Medical and  
Social Aspects ALFRED COWAN, Philadelphia  
Discussion to be opened by E V L BROWN, Chicago,  
and WILLIAM H CRISP, Denver
- The True Importance of Aniseikonia  
EDWARD JACKSON, Denver  
Discussion to be opened by ADELBERT AMES, Hanover,  
N H, and WALTER B LANCASTER, Boston
- Cataracts Following Dinitrophenol Treatment for Obesity  
(Lantern Demonstration)  
WARREN D HORNER, San Francisco  
Discussion to be opened by ARTHUR J BEDELL, Albany,  
N Y, and ALBERT D FROST, Columbus Ohio

Thursday, May 14—9 a m

- A Statistical Study of Functional Muscle Tests in Axial Myo-  
pia (Lantern Demonstration)  
ALBERT C SNELL, Rochester, N Y  
Discussion to be opened by MYLER WIFFER, St Louis,  
and THOMAS D ALLAN, Chicago
- A Critical Analysis of Glaucoma Operations (Lantern Demon-  
stration)  
WEBB W WEEKS, New York  
Discussion to be opened by HARRY S GRADLE and PHILIP  
D O'CONNOR, Chicago
- Iridectomy with Cyclodialysis for Reduction of Ocular Tension  
(Lantern Demonstration)  
JOHN M WHEELER, New York  
Discussion to be opened by ALLEN GREFFWOOD, Boston,  
and FRANK E BURCH, St Paul

- Eye Complications in Meningococcic Meningitis (Lantern Dem-  
onstration) NATHAN K LAZAR, Chicago  
Discussion to be opened by ARCHIBALD L HOYNE, Chi-  
cago, and PARKER HEATH, Detroit

### Demonstration Session

- New Methods in Galvanic and Diathermic Treatment of Retinal  
Detachment CLIFFORD B WALKER, Los Angeles
- Grafts from the Prepuce and Labia Minora for the Conjunctiva  
and Restoration of the Socket (Lantern Demonstration)  
GRADY E CLAY, Atlanta, Ga
- Goniotomy: an Operation for Chronic Primary Glaucoma (Lan-  
tern and Motion Picture Demonstration)  
OTTO BARKAN, San Francisco
- Bilateral Anterior Lenticonus (Lantern Demonstration)  
EYFRET C MOULTON, Fort Smith Ark
- Retrobulbar Injection Within the Muscular Cone or Cone Injec-  
tion (Lantern Demonstration)  
WALTER S ATKINSON, Watertown N Y
- The Use of Callahan Tubes in the Treatment of Chronic  
Dacryocystitis (Motion Picture Demonstration)  
CHARLES N SPRATT, Minneapolis

Friday, May 15—9 a m

### Executive Session

### Election of Officers

- Effect of Intra-Ocular Typhoid Antibody Concentration on  
Experimental Corneal Ulcers (Lantern Demonstration)  
ALBERT L BROWN, Cincinnati
- Discussion to be opened by CHARLES A BAHN, New  
Orleans and PHILLIPS THYGFSON, Iowa City
- Malformations of the Posterior Segment of the Human Eye  
An Embryologic Interpretation  
BERTHA A KLIEN, Chicago
- Discussion to be opened by HENRY C HADEN, Houston,  
Texas, and DERRICK T VAIL, Cincinnati
- The Cortical Innervation of Ocular Movements (Lantern Dem-  
onstration)  
NORMAN P SCALA, Washington, D C, and ERNEST A  
SPIEGEL, Philadelphia
- Discussion to be opened by ALFRED BIELSCHOWSKY,  
Hanover, N H
- Clinical and Anatomic Observations in Fellow Eyes with  
Chronic Tuberculous Uveitis (Lantern Demonstration)  
HARVEY D LAMB, St Louis
- Discussion to be opened by BEULAH CUSHMAN, Chicago
- A Study of More Than Two Hundred Postoperative Strabismus  
Cases (Lantern Demonstration)  
J L BRESSLER, Chicago
- Discussion to be opened by CONRAD BERENS, New York,  
and ALBERT N LEMOINE, Kansas City, Mo

## SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

MEETS IN LITTLE THEATER, MUNICIPAL AUDITORIUM

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Secretary—GORDON B NEW, Rochester, Minn  
Executive Committee—WILLIAM P WHERRY, Omaha, JOHN  
J SHEA, Memphis, Tenn, RALPH A FENTON, Portland Ore

Wednesday, May 13—2 p m

- Pitfalls in the Diagnosis and Treatment of Retropharyngeal  
Abscess in Children (Lantern Demonstration)  
LYMAN G RICHARDS, Boston
- Discussion to be opened by SAMUEL ICLAUER, Cincinnati  
HORACE R LYONS, Chicago, and E FRANK CHASE,  
Seattle
- Chronic Sinusitis The Source and Carrier of the Common  
Cold (Lantern Demonstration)  
EDWARD CECIL SEWALL, San Francisco
- Discussion to be opened by VIRGIL W MCCARTY, Kansas  
City, Mo, T R GITTINS, Sioux City, Iowa, and  
HOWARD C BALLENGER, Winnetka, Ill

Osteomyelitis of the Frontal Bone (Lantern Demonstration)  
HARRIS P MOSHER, Boston  
Discussion to be opened by ERNEST SACHS, St Louis,  
JOHN J SHEA Memphis, Tenn, and O JASON DIXON,  
Kansas City, Mo

The Chronicity of Sinus Disease and Its Relation to Middle  
Ear Infection and Deafness (Lantern Demonstration)  
MARVIN M CULLOV, Nashville, Tenn  
Discussion to be opened by GORDON D HOOPLE, Syracuse,  
N Y, HARRY L BAUM, Denver, and CARROLL L  
SMITH, Spokane, Wash

The Etiology and Treatment of Hemorrhage of the Nose and  
Throat (Lantern Demonstration)  
HENRY M GOODYEAR, Cincinnati  
Discussion to be opened by FRANK R SPENCER, Boulder,  
Colo, SAM E ROBERTS, Kansas City, Mo, and  
THOMAS C GALLOWAY, Evanston, Ill

#### Thursday, May 14—2 p m

Chairman's Address The Physiologic Approach to Otolaryn-  
gology (Lantern Demonstration)

RALPH A FENTON, Portland, Ore

The Autonomic Nervous System in Relation to Otolaryngology  
(Lantern Demonstration) ALBERT KUNTZ, St Louis  
Discussion to be opened by LEO STONE, Topeka, Kan,  
GORDON F HARKNESS Davenport, Iowa, and HARRIS  
H VAIL, Cincinnati

The Galvanic Falling Reaction in Patients with Verified Intra-  
cranial Neoplasms (Lantern Demonstration)  
LOYAL DAVIS and EDWIN J BLONDER, Chicago

The Vestibular (Barany) Tests in the Diagnosis and Localiza-  
tion of Intracranial Lesions A Report of Fifteen Proved  
Cases (Lantern Demonstration)  
GEORGE M COATES BENJAMIN H SHUSTER and HERMAN  
B SLOTKIN Philadelphia

Discussion on papers of DRS DAVIS and BLONDER and  
DRS COATES SHUSTER and SLOTKIN to be opened by  
WINCHELL McK CRAIG, Rochester Minn, CLAUDE  
T UREN, Omaha, and JOHN C McKINLEY, Minne-  
apolis

The Diagnosis and Treatment of Primary Malignant Disease  
of the Tracheobronchial Tree A Report of 140 Cases  
Diagnosed by Removal of Tissue at Bronchoscopy (Lan-  
tern Demonstration)

PORTER P VINSON, Rochester, Minn

Discussion to be opened by JOHN D KERNAN, New  
York EDWARD H SKINNER, Kansas City, Mo, and  
MILLARD F ARBUCKLE, St Louis

Late Results Following Operations for the Cure of Carcinoma  
of the Larynx (Lantern Demonstration)

SAMUEL J CROWE and EDWIN N BROYLES Baltimore  
Discussion to be opened by GABRIEL TUCKER, Philadel-  
phia, MURDOCK S EQUEN, Atlanta, Ga, and GORDON  
B NEW, Rochester, Minn

#### Friday, May 15—2 p m

##### Election of Officers

Otitis Media in Infants and Adults A Histopathologic Study  
(Lantern Demonstration)

HERMAN SEMENOV, Los Angeles

Discussion to be opened by WILLIAM A WAGNER New  
Orleans

Petrositis (Lantern Demonstration)

H J PROFANT Santa Barbara Calif

Osteomyelitis of the Inferior Surface of the Petrous Pyramid  
(Lantern Demonstration)

WELLS P EAGLETON, Newark N J

Discussion on papers of DRS PROFANT and EAGLETON to  
be opened by GEORGE M COATES, Philadelphia HAROLD  
I LILLIE Rochester Minn, and MERVIN C MYERSON,  
New York

Neuralgias and Ear Symptoms Associated with Disturbed  
Function of the Temporomandibular Joint (Lantern  
Demonstration)

JAMES B COSTEN, St Louis

Discussion to be opened by THOMAS E CARMODY,  
Denver, and ROLAND M KLEMME and WENDELL G  
SCOTT, St Louis

Glossopharyngeal Neuralgia (Lantern Demonstration)

WALTER B HOOVER and JAMES L POPPEN, Boston  
Discussion to be opened by J JAY KEEGAN, Omaha,  
EDWARD D KING, Cincinnati, and FRENCH K HANSEL,  
St Louis

#### SECTION ON PEDIATRICS

MEETS IN NORTH HALF OF ARENA,  
MUNICIPAL AUDITORIUM

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Executive Committee—ALFRED A WALKER, Birmingham, Ala,  
A GRAEME MITCHELL, Cincinnati, HORTON R CASPARIS,  
Nashville, Tenn

#### Wednesday, May 13—2 p m

Chairman's Address The Preventive Aspects of Poor Mental  
Health HORTON R CASPARIS, Nashville, Tenn

Surgical Aspects of Chronic Lung Infections in Children (Lan-  
tern Demonstration) EVARTS A GRAHAM, St Louis

Acute Infective Laryngotracheobronchitis of Children (Lantern  
and Motion Picture Demonstration)  
CHEVALIER JACKSON and CHEVALIER L JACKSON, Phila-  
delphia

Appendicitis in Children A Survey of Three Hundred Cases  
(Lantern Demonstration)  
ADOLPH G DESANTIS and EDWARD W PETERSON, New  
York

Mechanical Lesions of the Appendix in Children as a Basis  
for Appendicitis (Lantern Demonstration)

PERCIVAL NICHOLSON, Ardmore, Pa

Xanthomatosis (Schuller-Christian's Disease) (Lantern Demon-  
stration) ROBERT A STRONG, New Orleans

#### Thursday, May 14—2 p m

The Treatment of Chorea by Means of Electroparalysis (Lantern  
and Motion Picture Demonstration)

C A NEYMANN and S L OSBORNE Chicago

Discussion to be opened by MAURICE L BLATT, Chicago

Active Artificial Immunization in Diphtheria The Relative  
Effectiveness of Various Antigens, and the Duration of  
the Immunity (Lantern Demonstration)

JEAN V COOKE, St Louis

The Classification and Prognosis of Glomerular Nephritis in  
Childhood (Lantern Demonstration)

ALBERT W SNOKE, San Francisco

The Chicago City-Wide Plan for the Care of Premature Infants  
(Lantern Demonstration) JULIUS H HESS, Chicago

Lip Reading and the Intelligence Quotient of the Hard of  
Hearing Child

APHRODITE J HOFSSOMMER, Webster Groves, Mo

Segmental Neuralgia in Childhood Simulating Visceral Disease  
(Lantern and Motion Picture Demonstration)

JOHN HART DAVIS, Cleveland

#### Friday, May 15—2 p m

##### Election of Officers

Allergy as the Cause of Frequent Colds and Chronic Coughs  
(Lantern Demonstration)

NORMAN WARD CLEIN, Seattle

Voluntary Food Habits of Normal Children (Lantern Demon-  
stration) CLIFFORD SWEET, Oakland, Calif

Changes in Acid Base Equilibrium in Whooping Cough  
Relation to the Underlying Pathogenesis of the Disease  
Therapeutic Significance (Lantern Demonstration)

JOSEPH C REGAN, Brooklyn

Immunization Against Infantile Paralysis (Lantern Demonstra-  
tion)

EMIL BOGEN, Olive View, Calif, and M A GIFFORD,  
Bakersfield Calif

Significance of Polioviral Substances in Resistance and  
Recovery from Poliomyelitis (Lantern Demonstration)

PAUL H HARMON, Chicago

Intravenous Treatment of Meningococcal Meningitis with  
Meningococcus Antitoxin (Lantern Demonstration)

ARCHIBALD L HOYNE, Chicago

## SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN OUTSIDE COMMITTEE ROOM, WANDOTTE STREET SIDE  
FOURTH FLOOR, MUNICIPAL AUDITORIUM

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Executive Committee—JOHN H MUSSEY, New Orleans CARL  
H GREENE, New York, CHAUNCEY D LEAKE, San Francisco

Wednesday, May 13—9 a m

Studies on the Optimal Dosage of Estrogenic Substances (Lan-  
tern Demonstration) CHARLES MAZER, Philadelphia  
Discussion to be opened by J P PRATT, Detroit

An Extract of the Adrenal Cortex Effective in Addison's Dis-  
ease (Lantern Demonstration)

WILLARD O THOMPSON, Chicago  
Discussion to be opened by RUSSELL M WILDER, Roches-  
ter, Minn

The Role of the Thymus and Pineal Gland in Growth and  
Development

LEONARD G ROWANTREE and N H EINHORN, Philadel-  
phia, and A M HANSON, Faribault, Minn

Chairman's Address The Practical Pharmacology of Central  
Nervous System Depressant Drugs

CHAUNCEY D LEAKE, San Francisco  
Experimental and Clinical Observations Regarding Angina Pec-  
toris and Some Related Symptoms (Lantern Demon-  
stration)

D E JACKSON and HELEN L JACKSON, Cincinnati  
Further Studies on the Mechanism of Action and the Relative  
Effectiveness of the Newer Diuretics (Lantern Demon-  
stration)

GEORGE R HERRMAN and GEORGE M DECHERD JR, Gal-  
veston, Texas

Discussion to be opened by JOSEPH M HAYMAN JR,  
Cleveland

Thursday, May 14—9 a m

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE NORTH  
HALF OF ARFAA, MUNICIPAL AUDITORIUM

The Clinical Use and Dangers of Hypnotics (Lantern Demon-  
stration) SOFIA WRISS, Boston

Address WILLIAM J KERR, San Francisco  
The Clinical Use of Diuretics (Lantern Demonstration)

JOSEPH M HAYMAN JR, Cleveland  
Clinical Evaluation of Fever Therapy (Motion Picture Demon-  
stration) STAFFORD L WARREN, Rochester, N Y

Notes on Treatment of Histolytic Infection in Man (Lantern  
Demonstration) W M JAMES, Panama, C Z

Friday, May 15—9 a m

Election of Officers

Cinchophen—Is There a Safe Method of Administration (Lan-  
tern Demonstration)?

WALTER L PALMER and PAUL S WOODALL, Chicago  
Discussion to be opened by MANFRED W COMFORT, Roches-  
ter, Minn

Individualizing Time of Administration of Insulin Use of  
Postprandial Insulin MILTON PLOTZ, Brooklyn  
Discussion to be opened by RALPH H MAJOR, Kansas  
City, Mo

Results of Dietary and Medical Treatment in Disease of the  
Gallbladder (Lantern Demonstration)

J R TWISS and C H GREFF, New York  
Discussion to be opened by GEORGE B EUSTEFMAN,  
Rochester, Minn, EVARTS A GRAHAM, St Louis, and  
J M BLACKFORD, Seattle

The Present Status of Research and Teaching in Pharmacology  
NORMAN A DAVID, Cincinnati, and GEORGE A EMERSON,  
Morgantown, W Va

Discussion to be opened by H B HAUG, Richmond, Va  
and O W BARLOW, Cleveland

Hypersensitiveness to Cold with Local and Systemic Manifest-  
ations of a Histamine like Character Its Amenable-  
ness to Treatment (Lantern Demonstration)

BAIRD T HORTON, Rochester, Minn  
Discussion to be opened by W W DUKE, Kansas City,  
Mo

A Pharmacologic Study of the Toxemia Theory of Surgical  
Shock (Lantern Demonstration)

CARL A DRAGSTEDT, Chicago

Discussion to be opened by ALFRED BLALOCK, Nashville,  
Tenn, and D B PHENISTER, Chicago

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN OUTSIDE COMMITTEE ROOM, WANDOTTE STREET SIDE,  
FOURTH FLOOR, MUNICIPAL AUDITORIUM

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Executive Committee—WILLIAM CARPENTER MACCARTY, Roch-  
ester, Minn, ELIAS P LYON, Minneapolis, HENRY C  
SWEANY, Chicago

Wednesday, May 13—2 p m

Chairman's Address Pathologic Interpretation of Roentgeno-  
logic Shadows of Pneumococcosis (Lantern Demon-  
stration) HENRY C SWEANY, Chicago

Laboratory Diagnosis of Infectious Mononucleosis (Lantern  
Demonstration) ISRAEL DAVIDSON, Chicago

Discussion to be opened by RICHARD H JAFFE, Chicago,  
and A S GIORDANO, South Bend, Ind

Chronic Thyroiditis (Lantern Demonstration)

RICHARD H JAFFE, Chicago

End Results of Very Radical Thyroidectomies (Lantern Dem-  
onstration) ARTHUR E HERTZLER, Halstead, Kan

Nervous System and Internal Secretions

LEON ASHER, Bern, Switzerland

Specific Artificial Immunity in Tuberculosis (Lantern Dem-  
onstration)

HARRY J CORPER, MAURICE L COHN, and A P DAME-  
ROW, Denver

Surgical Shock in Peritonitis Due to Bile and to Liver Autol-  
ysis (Lantern Demonstration)

HENRY N HARKINS, Chicago

Discussion to be opened by LESTER R DRAGSTEDT and  
EDMUND ANDREWS, Chicago, and THOMAS G ORR,  
Kansas City, Mo

The Blood Nitrite EDWARD J STIEGLITZ, Chicago  
Discussion to be opened by ANTON J CARLSON, Chicago

Thursday, May 14—2 p m

### SIMPOSIUM ON VITAMINS

Historical Aspects of the Vitamins

E V MCCOLLUM, Baltimore

The Chemistry of Vitamins (Lantern Demonstration)

C G KING, Pittsburgh

Chemistry of Vitamin A (Lantern Demonstration)

H A MATTHEW, Iowa City

Chemistry of the Vitamin B Complex (Lantern Demonstra-  
tion) RICHARD J BLOCK, New York

New Forms and Sources of Vitamin D (Lantern Demonstra-  
tion) CHARLES E BILLS, Evansville, Ind

The Pathologic Changes Resulting from Vitamin Deficiency  
(Lantern Demonstration) S B WOLBACH, Boston

Clinical Manifestations of Vitamin Deficiency (Lantern Dem-  
onstration) JOHN B YOUMANS, Nashville, Tenn

Physiology of Vitamins ANTON J CARLSON, Chicago

Friday, May 15—2 p m

Election of Officers  
Shwartzman Phenomena (Lantern Demonstration)

GRIGORY SHWARTZMAN, New York  
Discussion to be opened by PAUL KLEMPFNER and I L  
GFRBER, New York

The Clinical Diagnosis of Periarteritis Nodosa (Lantern Dem-  
onstration)

MILTON B COHEN, BENJAMIN S KLINE, and ANNA  
MAY YOUNG, Cleveland

Identification of the Cancer Cell (Lantern Demonstration)

WILLIAM CARPENTER MACCARTY, Rochester, Minn

The Effects of Intravenous Injections of Salt Solution in Col-  
lapse Due to Mechanical Impounding of Blood in the  
Splanchnic Region (Lantern Demonstration)

JAMES P SIMMONS, Chicago

Studies on the Relation of Micro Organisms to Allergy IV  
Seasonal Hay Fever and Asthma Due to Molds (Lantern  
Demonstration) SAMUEL M FARBBERG, Chicago



## Myocardial Syphilis (Lantern Demonstration)

JACK C NORRIS, Atlanta, Ga  
Discussion to be opened by CARL V WELLER, Ann Arbor, Mich, and REGINALD FITZ, Boston

## The Physiologic Effects of Fever Therapy as Related to the Preparation and Various Sedatives Employed

ANDREW H DOWDY and FRANK W HARTMAN, Detroit  
Discussion to be opened by WALTER M SIMPSON, Dayton, Ohio

## SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ASSEMBLY ROOM SIXTH FLOOR,  
MUNICIPAL AUDITORIUM

## OFFICERS OF SECTION

Chairman—HANS H F REESE, Madison Wis  
Vice Chairman—PERCIVAL BAILEY, Chicago  
Secretary—HENRY R VITTS, Boston  
Executive Committee—HENRY W WOLTMAN Rochester, Minn,  
H DOUGLAS SINGER, Chicago, HANS H F REESE, Madison, Wis

Wednesday, May 13—9 a m

## Epidermoid Tumors of the Brain (Lantern Demonstration)

J GRAFTON LOVE Rochester, Minn  
Discussion to be opened by ERNEST SACHS, St Louis, and R GLEN SPURLING, Louisville Ky

## Encephalography with Ethylene (Lantern Demonstration)

HENRY W NEWMAN San Francisco  
Discussion to be opened by JOHN J KEEGAN, Omaha  
Neoplasms of the Spinal Cord Report of a Series of Forty-Two Surgical Cases (Lantern Demonstration)  
R GLEN SPURLING and FRANK H MAYFIELD, Louisville, Ky

Discussion to be opened by PERCIVAL BAILEY, Chicago, and FRANK R TEACHENOR, Kansas City, Mo

## Newer Aspects of Meniere's Disease Diagnosis and Treatment (Lantern Demonstration)

WALTER E DANDY, Baltimore  
Discussion to be opened by FRANK R TEACHENOR, Kansas City Mo, and FRANCIS C GRANT, Philadelphia

## Alcohol Injection in the Treatment of Major Trigeminal Neuralgia (Lantern Demonstration)

FRANCIS C GRANT, Philadelphia  
Discussion to be opened by WALTER E DANDY, Baltimore, and J GRAITON LOVE, Rochester Minn

## The Treatment of Encapsulated Brain Abscess A Method Whereby the Wall Is Brought To or Above the Surface Preliminary to Drainage (Lantern Demonstration)

EDGAR A KAHN Ann Arbor, Mich  
Discussion to be opened by R GLEN SPURLING, Louisville, Ky, and JOSEPH E J KING, New York

Thursday, May 14—9 a m

## SYMPOSIUM ON THE ACTION POTENTIALS OF THE BRAIN

## I In Normal Persons and in Normal States of Cerebral Activity (Lantern Demonstration)

HALLOWELL DAVIS and PAULINE A DAVIS, Boston

## II In Certain Types of Mental Deficiency (Lantern Demonstration)

GEORGE KREEZER, Vineland N J

## III In Epilepsy (1) Significance for Diagnosis and Localization (2) Effect of Drugs and of Conditions Which Influence Seizures (Lantern Demonstration)

FRDERIC A GIBBS, WILLIAM G LENNON and ERNA L GIBBS, Boston

Discussion to be opened by L E TRAVIS, Iowa City

## Fever Therapy in Tabes Dorsalis The Relief of Gastric Crises and Lightning Pains by the Use of the Kettering Hypertherm

A E BENNETT Omaha  
Discussion to be opened by FRANKLIN G EBAUGH, Denver

## A Comparative Study of Artificial Hyperpyrexia and Therapeutic Malaria in the Treatment of Paresis A Preliminary Report (Lantern Demonstration)

CLARKE H BARNACLE, FRANKLIN G EBAUGH and JACK R EWALT, Denver

Discussion to be opened by A E BENNETT, Omaha

Friday, May 15—9 a m

## Election of Officers

## Chairman's Address The History of Scalping and Its Clinical Aspects (Lantern Demonstration)

HANS H F REESE, Madison Wis

## Psychoneurotic Depressions

CHARLES H KIMBERLY, Stockbridge, Mass  
A Children's Hospital for Neurologic and Behavior Disorders Five Years' Experience at the Emma Pendleton Bradley Home (Lantern Demonstration)

CHARLES BRADLEY, East Providence R I  
Discussion to be opened by WILLIAM G LENNON, Boston

## The Visceral Nervous System and Its Relation to the Endocrines

HOMER P RUSH Portland, Ore

## Unilateral Cerebral Dominance as Related to Mind Blindness The Minimal Lesion Capable of Causing Visual Agnosia for Objects

J M NIELSEN, Los Angeles  
Discussion to be opened by JOHN B DOYLE, Los Angeles, and GEORGE B HASSIN, Chicago

## Toxic Focal Lesions in the Central Nervous System (Lantern Demonstration)

LOUIS L TURLEN, SIDNEY I SCHWAB and JOSEPH J GITT, St Louis

Discussion to be opened by ROY R GRINKER and GEORGE B HASSIN, Chicago

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN INSIDE COMMITTEE ROOM, FOURTH FLOOR,  
MUNICIPAL AUDITORIUM

## OFFICERS OF SECTION

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Vice Chairman—JOHN G DOWNING, Boston  
Secretary—J BEDFORD SHELMIERE, Dallas, Texas  
Executive Committee—C GUY LANE, Boston, JEFFREY C MICHAEL, Houston, Texas, HARRY R FOERSTER, Milwaukee

Wednesday, May 13—9 a m

## Chairman's Address Some Observations on Industrial Dermatology

HARRY R FOERSTER, Milwaukee

## Lupus Erythematosus A Modification of Therapy with Gold Compounds

HFRBERT S ALDEN and JACK W JONES Atlanta, Ga  
Discussion to be opened by JAMES K HOWLRS, New Orleans

## Histopathology of Various Types of Cutaneous Tuberculosis (Lantern Demonstration)

HAMILTON MONTGOMERY, Rochester, Minn  
Discussion to be opened by DUNCAN O POTH, San Antonio, Texas

## Besnier-Boeck's Disease (Lantern Demonstration)

JAMES W JORDON and EARL D OSBORNE, Buffalo  
Discussion to be opened by J P GULQUIERRE, Philadelphia

## Lichen Ruber Moniliformis Report of a Hitherto Undescribed Variety of a Rare Dermatoses (Lantern Demonstration)

FRED WISE, CHARLES R REIN and DAVID L SATENSTEIN, New York

Discussion to be opened by F M JACOB, Pittsburgh

## Aleukemic Reticulosis An Additional Member of the So Called Cutaneous Lymphoblastomas (Lantern Demonstration)

JAMES T WAYSON Honolulu, H I, and FRED D WEIDMAN, Philadelphia

## Cutaneous Lesions Associated with Monocytic Leukemia and Reticulo-Endotheliosis (Lantern Demonstration)

FRANCIS W LYNCH, St Paul  
Discussion on papers of DRS WAYSON and WEIDMAN and DR LYNCH to be opened by A B LOVENAN, Louisville Ky

Thursday, May 14—9 a m

## The Treatment of Lip Cancer A Clinical Survey of Four Hundred Cases Treated by Different Methods (Lantern Demonstration)

EUGENE A HAND and UDO J WILE, Ann Arbor Mich  
Discussion to be opened by EVERETT S LAIN, Oklahoma City

## Some Patch Test Observations Based on Five Years' Experience in More Than Nine Hundred Patients with More Than Ten Thousand Tests (Lantern Demonstration)

ADOLPH ROSTENBERG JR and MARION B SULZBERGER, New York

Discussion to be opened by M E OBERMAYER Chicago

The Relation of Diet to Skin Infection A Study of the Influence of High and Low Carbohydrate and High Fat Intakes and Starvation on Experimental Pyogenic Skin Infections in Dogs (Lantern Demonstration)  
DONALD M PILLSBURY and THOMAS H STERNBERG, Philadelphia

Discussion to be opened by JOHN F MADSEN, St Paul  
"Fixed" Drug Eruptions

E WILLIAM ADAMOWITZ, New York, and MAURICE H NOON, Des Moines Iowa

Discussion to be opened by MARQUE O NELSON, Tulsa, Okla

Extracellular Cholesterinosis (Lantern Demonstration)  
CARL W LAYMON, Minneapolis

Discussion to be opened by C GUY LANE Boston  
Streptococcic Dermatoses of the Ears (Lantern Demonstration)

JAMES HERBERT MITCHELL Chicago  
Discussion to be opened by CLINTON W LANE, St Louis

Vitamin C and Pigment (Lantern Demonstration)  
THEODORE CORNBLEET, Chicago

Discussion to be opened by S W BRCKER Chicago  
Friday, May 15—9 a m

Election of Officers  
Resistant Early Syphilis in Two Instances of Conjugal Infection (Lantern Demonstration)

C W NETHERTON Cleveland  
Discussion to be opened by JOHN ERIC DALTON, Indianapolis

Ulcerative Lesions of the Skin in Lymphogranuloma Inguinale (Lantern Demonstration)

MAX S WIEN and MINNIE ODOLER PERLSTEIN Chicago  
Untreated Syphilis in the Male Negro A Comparative Study of Treated and Untreated Cases (Lantern Demonstration)

R A VONDERLEHR Washington D C  
Discussion to be opened by CHARLES C DENNIE, Kansas City Mo

A Study of the Rapidity with Which Spirochaeta Pallida Invades the Blood Stream (Lantern Demonstration)

GEORGE W RAIZISS and MARIE SEVERAC, Philadelphia  
Discussion to be opened by RICHARD L SUTTON JR, Kansas City, Mo

Cod Liver Oil Ointments in the Treatment of Indolent Ulcers (Lantern Demonstration)

J R DRIVER, GEORGE W BINKLEY and MAURICE SULLIVAN, Cleveland  
Discussion to be opened by EVERETT C FOX, Dallas, Texas

Clinical Evaluation of a New Trichophyton Extract "Dermatomycol"  
J J ELLER and K A KAZANJIAN New York

Discussion to be opened by HARRY P JACOBSON, Los Angeles

## SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN CONGRESS ROOM HOTEL PRESIDENT

### OFFICERS OF SECTION

Chairman—R R SAYERS, Washington, D C  
Vice Chairman—J LYNN MAHAFFEY Camden N J

Acting Secretary—IRL C RIGGIN Richmond Va  
Executive Committee—WILSON G SWILLIE Boston ROBERT H RILEY, Baltimore, R R SAYERS Washington D C

Wednesday, May 13—2 p m

### INDUSTRIAL MEDICINE

Chairman's Address Industrial Hygiene Problems in the United States (Lantern Demonstration)

R R SAYERS Washington D C  
Papilloma and Carcinoma of the Urinary Bladder in Dye Workers (Lantern Demonstration)

GEORGE H GEHRMANN Wilmington, Del  
Anthracosilicosis (Lantern Demonstration)

W C DRESSEY and R R JONES Washington D C  
Safe Practices in the Industrial Use of Carbon Tetrachloride

HENRY FIELD SMITH Philadelphia  
A New Procedure for the Control of Benzene Poisoning

H H SCHRECK and W P YANT, Pittsburgh  
Thursday May 14—2 p m

### PREVENTIVE MEDICINE

Poliomyelitis, Present Knowledge and Its Bearing on Control (Lantern Demonstration)

J P LEAKE Washington D C

Immediate Treatment and After-Care of Poliomyelitis Patients (Lantern Demonstration)

THEODORE C HEMPELMANN, St Louis  
Rabies and What to Do for the Person Bitten

V H BASSETT, Savannah Ga  
The Opsonocytaphagic Allergic and Agglutination Reactions in the Diagnosis of Undulant Fever (Lantern Demonstration)

A E KELLER, CRIT PHARRIS and W H GAUB, Nashville Tenn

Significance of an Epidemic of Dengue  
T H D GRIFFITHS and HENRY HANSON, Jacksonville Fla

The Evaluation of the Ragweed Hay Fever Resort Areas of North America (Lantern Demonstration)

O C DURHAM, Chicago  
Friday, May 15—2 p m

### PUBLIC HEALTH

Election of Officers  
The Physician's Place in the Public Health Program

W W BAUER Chicago  
What Service Does a Health Department Render to the Practicing Physician?

JOSEPH F BREDECK St Louis  
The Functions of a State Health Department (Lantern Demonstration)

E G BROWN Topeka Kan  
Discussion to be opened by WALTER L BIFFRING, Des Moines, Iowa

Medical Aspects of Accident Control  
L D BRISTOL New York

Chronic Endemic Dental Fluorosis (Mottled Enamel) (Lantern Demonstration)

H T DEAN Washington, D C

## SECTION ON UROLOGY

MEETS IN INSIDE COMMITTEE ROOM FOURTH FLOOR, MUNICIPAL AUDITORIUM

### OFFICERS OF SECTION

Chairman—JOHN H MORRISSEY New York  
Vice Chairman—C H DE T SIVERS, Atlantic City, N J

Secretary—WILLIAM P HERDST JR, Washington, D C  
Executive Committee—HARRY CULVER Chicago, STANLEY R WOODRUFF, Jersey City, N J, JOHN H MORRISSEY, New York

Wednesday, May 13—2 p m

Injection Treatment for Hydrocele  
GEORGE H EWELL, Madison Wis

Transurethral Surgery Changing Conceptions During the Past Five Years (Lantern Demonstration)

GERSHON J THOMPSON Rochester, Minn  
Water Balance in Surgical Patients (Lantern Demonstration)

WALTER G MADDOCK, Ann Arbor, Mich  
Present Status of Dietary Regimens in Treatment of Urinary Calculi (Lantern Demonstration)

CHARLES C HIGGINS, Cleveland  
Present Status of Dietary Regimens in Urinary Infections

ANSON L CLARK Oklahoma City  
The Present Status of Cystometry (Lantern Demonstration)

D K ROSE St Louis  
Presentation of New Instrument for Electrosurgical Uretero-Intestinal Anastomosis

FREDERIC E B FOLEY, St Paul  
Thursday, May 14—2 p m

Chairman's Address  
JOHN H MORRISSEY, New York

The Value of Fever Therapy in the Treatment of Gonorrhea  
C A OWENS Omaha

Ureteropelvic Obstruction of the Noncalculous Type in Hydro-nephrosis (Lantern Demonstration)

T D MOORE, Memphis Tenn  
Results of Transurethral Prostatic Resection (Lantern Demonstration)

N G ALCOCK, Iowa City  
Recent Developments in Excretion Urography

MOSSES SWICK New York  
Intraprostatic Injection An Experimental Study by Vincent O Connor and Robert L Ladd (Lantern Demonstration)

VINCENT J O CONOR, Chicago  
Friday, May 15—2 p m

Election of Officers  
The Endocrines in Sterility

LEOPOLD LICHTWITZ New York  
The Gynecologic Aspect of Human Sterility

SAMUEL R MFAKEL Boston

Methods of Sperm Analysis, with the Valuation of Therapeutic Procedures (Lantern Demonstration)

ROBERT S. HOTCHKISS, New York

Inflammatory Occlusion of the Epididymis in Male Sterility (Lantern Demonstration)

FRANCIS R. HAGNER, Washington, D. C.

Granuloma Inguinale (Lantern Demonstration)

JESSE ULLMAN REAVES, Mobile, Ala.

Analysis of Indications for and Results of Cystoscopic Examination (Lantern Demonstration)

M. A. NICHOLSON, Duluth, Minn.

## SECTION ON ORTHOPEDIC SURGERY

MEETS IN ASSEMBLY ROOM SIXTH FLOOR,  
MUNICIPAL AUDITORIUM

### OFFICERS OF SECTION

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Secretary—ROBERT V. FUNSTEN, University, Va.

Executive Committee—JAMES S. SPEED, Memphis, Tenn.; ROBERT D. SCHROCK, Omaha; ARTHUR T. LEGG, Boston

Wednesday, May 13—2 p. m.

Results Obtained by the Subcutaneous Fixation of Fractures of the Neck of the Femur (Lantern Demonstration)

J. ALBERT KEV, St. Louis

Discussion to be opened by ELLIS W. JONES, Los Angeles, Edwin W. RYERSON, Chicago, and FRED KNOWLES, Fort Dodge, Iowa

Fractures of the Neck of the Femur in Children (Lantern Demonstration)

JOSEPH I. MITCHELL, Memphis, Tenn.

Discussion to be opened by FRANK R. OBER, Boston; GUY W. LEADBETTER, Washington, D. C.; and ROBERT G. PACKARD, Denver

The Evaluation of the Various Methods of Treatment Advanced for Fractures of the Neck of the Femur

PAUL B. MAGNUSON, Chicago

Discussion to be opened by FREDERICK C. KIDNER, Detroit; CLAY RAY MURRAY, New York; and FRANK D. DICKSON, Kansas City, Mo.

A New Lateral Roentgenogram of the Femoral Neck (Lantern Demonstration)

ALBERT B. FERGUSON, New York

Discussion to be opened by FRED J. GAENSELEN, Milwaukee, and J. S. SPEED, Memphis, Tenn.

Chairman's Address (Lantern Demonstration)

ARTHUR T. LEGG, Boston

Massive Resection and Bone Graft Replacement in Sarcoma of the Long Bones (Motion Picture Demonstration)

FRED H. ALBEE, New York

Discussion to be opened by ARTHUR STEINDLER, Iowa City, and HENRY W. MEYERDING, Rochester, Minn.

Thursday, May 14—2 p. m.

The Treatment of Osteomyelitis, with a Report of Five Hundred Cases (Lantern Demonstration)

MARCUS H. HOBART, Evanston, Ill.

Discussion to be opened by R. J. DITTRICH, Fort Scott, Kan.; JACOB KULOWSKI, St. Joseph, Mo.; and J. E. M. THOMSON, Lincoln, Neb.

Osteomyelitis of the Ilium, Acute and Chronic (Lantern Demonstration)

CARL E. BADGLEY, Ann Arbor, Mich.

Discussion to be opened by WILLIS C. CAMPBELL, Memphis, Tenn.; and W. B. CARRELL, Dallas, Texas

Osteomyelitis of the Spine (Lantern Demonstration)

GUY A. CALDWELL, Shreveport, La.

Discussion to be opened by ABRAHAM O. WILENSKI, New York; and ALFRED R. SHANDS JR., Durham, N. C.

Acute Hematogenous Osteomyelitis: An Analysis of Seventy-Five Cases (Lantern Demonstration)

ROBERT C. ROBERTSON, Chattanooga, Tenn.

Discussion to be opened by ROBERT C. LONGERAN, Evanston, Ill.; and HERBERT A. DURHAM, Shreveport, La.

Growth Changes in Bone as a Result of Osteomyelitis in Children (Lantern Demonstration)

JOHN C. WILSON, Los Angeles

Discussion to be opened by D. B. PHEMISTER, Chicago, and J. D. BISGARD, Omaha

Late Infection Following the Use of Wire and Pins in Bone

SYLVAN L. HAAS, San Francisco

Discussion to be opened by LE ROI C. ABBOTT, San Francisco, and ROGER ANDERSON, Seattle

Friday, May 15—2 p. m.

### Election of Officers

Tuberculosis of the Hip in Children (Lantern Demonstration)

JOSEPH S. BARR, Boston

Discussion to be opened by ARTHUR STEINDLER, Iowa City

The Massive Bone Graft (Lantern Demonstration)

MELVIN S. HENDERSON, Rochester, Minn.

Discussion to be opened by OSCAR L. MILLER, Charlotte, N. C.; HERMAN C. SCHUMM, Milwaukee; and FRYMONT A. CHANDLER, Chicago

The Operative versus the Manipulative Treatment of Slipped Femoral Epiphysis, with a Description of a Curative Operation (Lantern Demonstration)

SAMUEL KLEINBERG and JOSEPH BUCHMAN, New York

Discussion to be opened by ARMITAGE WHITMAN, New York; CHARLES W. PEABODY, Detroit; and W. EUGENE WOLCOTT, Des Moines, Iowa

The Physiologic Effects of the Correction of Faulty Posture (Lantern Demonstration)

LOUIS B. LAIDLAC and JESSE T. NICHOLSON, Philadelphia

Discussion to be opened by LLOYD T. BROWN, Boston; and WILLIAM BATES and DORFST P. WILLARD, Philadelphia

A Conservative Treatment of Habitual Dislocations of the Shoulder (Lantern Demonstration)

ARTHUR G. DAVIS, Erie, Pa.

Discussion to be opened by JAMES WARREN SEYER, Boston; ENSON B. FOWLER, Evanston, Ill.; and DAVID M. BOSWORTH, New York

Chronic Scleritis Due to Adhesions About the Nerve Trunk and the Results of Their Removal by Operation

GEORGE WAGONER, Haverford, Pa.

Discussion to be opened by ALBERT H. FREIBERG, Cincinnati; ARCHIBALD F. O'DONOGHUE, Sioux City, Iowa; and ROBERT M. SCHAUFFERT, Kansas City, Mo.

## SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN CONGRESS ROOM, HOTEL PRESIDENT

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Secretary—A. H. AARON, Buffalo

Executive Committee—ALBERT F. R. ANDRESEN, Brooklyn; WALTER A. FANSLER, Minneapolis; ERNEST H. GAITHER, Baltimore

Wednesday, May 13—9 a. m.

Multiple Polypsis of Colon, Familial Factor and Malignant Tendency (Lantern Demonstration)

D. C. MCKENNEY, Buffalo

Discussion to be opened by T. E. JONES, Cleveland, and J. J. CORBETT, Detroit

Disseminated Polypsis of the Colon (Lantern Demonstration)

CHARLES W. MAYO and E. G. WAKEFIELD, Rochester, Minn.

Discussion to be opened by FRANK H. LAHEY, Boston; and WALTER A. FANSLER, Minneapolis

Clinical Significance of Indicanuria (Lantern Demonstration)

H. W. SOPER, St. Louis

Discussion to be opened by A. L. LEVIN, New Orleans

The Relation of Gastro-Enterology to General Medicine

NELSON G. RUSSELL, Buffalo

Discussion to be opened by GEORGE B. EUSTERMANN, Rochester, Minn.

Alcohol and Cirrhosis of the Liver: Clinical and Pathologic Considerations (Lantern Demonstration)

RUSSELL S. BOLES and JEFFERSON H. CLARK, Philadelphia

Discussion to be opened by HARRY L. BOCKUS and LEONARD G. ROWNTREE, Philadelphia

The Relationship of the Serum Phosphatase Value in the Blood in the Differential Diagnosis of Obstructive and Hepato-

cellular Jaundice (Lantern Demonstration)

DAVID R. MERANZE and MAURICE M. ROTHMAN, Philadelphia

Discussion to be opened by LEONARD G. ROWNTREE, Philadelphia, and J. RUSSELL TWISS, New York

Serum Proteins in Hepatic Diseases (Lantern Demonstration)  
HARRY L BOCKUS and H J TUMEN, Philadelphia  
Discussion to be opened by A M SNELL, Rochester, Minn

Thursday, May 14—9 a m

Chairman's Address Recent Advances in Gastro-Enterology  
ERNEST H GAITHER, Baltimore

Chronic Gastritis (Lantern Demonstration)  
RUDOLF SCHINDLER, MARIE ORTMAYER and JOHN F RENSCHAW, Chicago

Discussion to be opened by WILLIAM C MACCARTY, Rochester, Minn, CHESTER M JONES, Boston, and LEON BLOCH, Chicago

The Leukopenic Index as a Diagnostic Method in the Study of Food Allergy (Lantern Demonstration)

WARREN T VAUGHAN, Richmond Va  
Discussion to be opened by W W DUKE, Kansas City, Mo, L P GAY, St Louis and HERBERT J RINKEL, Kansas City, Mo

The Etiology of Pruritus Ani Clinical and Histologic Manifestations in Forty-Three Cases (Lantern Demonstration)  
C C TUCKER and C A HELLWIG, Wichita Kan  
Discussion to be opened by HARRY E BACON, Philadelphia

The Surgical Treatment of Pruritus Ani (Lantern Demonstration)  
MAPION C PRUITT, Atlanta, Ga  
Discussion to be opened by HARVEY B STONE, Baltimore

The Clinical Significance of Negative Roentgen Examinations in Patients with Chronic Dyspepsia (Lantern Demonstration)  
GEORGE B EUSTERMAN, Rochester, Minn  
Discussion to be opened by EDWARD H SKINNER, Kansas City, Mo, and NELSON G RUSSELL, Buffalo

Friday, May 15—9 a m

Election of Officers

The Importance of Routine Examination of the Colon (Lantern Demonstration)  
LOUIS J HIRSCHMAN, Detroit  
Discussion to be opened by W H KIGER, Los Angeles, and D C MCKENNEY, Buffalo

Diaphragmatic Hernia Symptomatology, Diagnosis and Treatment (Lantern Demonstration)  
SAMUEL MOREIN, Providence, R I

Discussion to be opened by P E TRUESDALE, Fall River, Mass, and I R JANKELSON, Boston

A Review of the Gastric Ulcer Problem (Lantern Demonstration)  
SARA M JORDAN, Boston  
Discussion to be opened by SIDNEY A PORTIS, Chicago, and RUSSELL S BOLES, Philadelphia

Treatment of Intractable Peptic Ulcer by Intramuscular Injections of Metallic Bismuth (Lantern Demonstration)  
FRANK D GORHAM, St Louis

Discussion to be opened by A F R ANDRESEN, Brooklyn

Comparative Value of Dietetic, Surgical and Parenteral Treatment in Peptic Ulcer (Lantern Demonstration)

DAVID J SANDWEISS, Detroit  
Discussion to be opened by SARA M JORDAN, Boston, and GEORGE B EUSTERMAN, Rochester, Minn

Carcinoma of the Rectum Factors Affecting Its Cure  
G V BRINDLEY, Temple, Texas

Discussion to be opened by CLYCE ROSSER, Dallas Texas and FRED W RANKIN, Lexington, Ky

Secondary Resections in Recurring Carcinoma of the Colon (Lantern Demonstration)  
J W THOMPSON, St Louis  
Discussion to be opened by C J HUNT, Kansas City, Mo, and C F DIXON, Rochester, Minn

## SECTION ON RADIOLOGY

MEETS IN INSIDE COMMITTEE ROOM, FIFTH FLOOR  
MUNICIPAL AUDITORIUM

### OFFICERS OF SECTION

Chairman—EDWARD L JENKINSON, Chicago

Vice Chairman—ROSS GOLDEN, New York

Secretary—JOHN T MURPHY, Toledo, Ohio

Executive Committee—A U DESJARDINS, Rochester, Minn  
JOHN W PIERSON, Baltimore, EDWARD L JENKINSON, Chicago

Wednesday, May 13—9 a m

Chairman's Address Cholecystography (Lantern Demonstration)  
EDWARD L JENKINSON, Chicago

Ulcer Crater Visualized by Pressure (Lantern Demonstration)  
HOLLIS E POTTER, Chicago

Cancer of the Duodenum A Clinical and Radiologic Study of Sixteen Cases (Lantern Demonstration)  
WILLIAM J HOFFMAN and GEORGE T PACK, New York

Some Observations on the Physiology and Pathology of the Small Intestine (Lantern Demonstration)  
E P PENDERGRASS, Philadelphia

Comparison of Methods of Roentgen Examinations of the Colon (Lantern Demonstration)  
JAMES T CASE, Chicago

Roentgenkymography Its Clinical and Physiologic Value in Diseases of the Heart and Chest (Lantern Demonstration)  
SHERWOOD MOORE and WENDELL G SCOTT, St Louis

Thursday, May 14—9 a m

Anomalies and Fractures of the Vertebral Articular Processes (Lantern Demonstration)

WILBUR BAILEY, Los Angeles

Bony Anomalies in Wrist and Foot (Lantern Demonstration)  
W WARNER WATKINS, Phoenix, Ariz

Classification of Lymph Node Enlargements (Lantern Demonstration)  
PLINY F MORSE, Detroit

The Character and Significance of the Blood Picture in the Lymphadenopathies (Lantern Demonstration)  
B K WISEMAN, Columbus, Ohio

The Roentgen Treatment of the So Called Malignant Lymphomas  
F W O'BRIEN, Boston

Leukemia of the Stomach Producing Hypertrophy of the Gastric Mucosa (Lantern Demonstration)  
LEO G RIGLER, Minneapolis

Friday, May 15—9 a m

Election of Officers

Radiation Therapy of the Lip (Lantern Demonstration)

IRA I KAPLAN, New York

Roentgen Rays as an Aid in the Treatment of Gas Gangrene (Lantern Demonstration)  
JAMES F KELLY, Omaha

Roentgen Therapy of Some Acute, Subacute and Chronic More or Less Localized Infections (Lantern Demonstration)  
FRED M HODGES and R A BERGER, Richmond, Va

Cystic Disease of the Lung (Lantern Demonstration)  
J CASH KING and LEO C HARRIS JR, Memphis, Tenn

Needle (Aspiration) Biopsy of Bone Lesions (Lantern Demonstration)  
ROBERT P BALL, Chattanooga, Tenn

Giant Cell Bone Tumor Further Observations on the Response to Surgical and Radiation Therapy (Lantern Demonstration)  
CARLETON B PEIRCE and ISIDORE LAMPE, Ann Arbor, Mich

## SECTION ON MISCELLANEOUS TOPICS

MEETS IN INSIDE COMMITTEE ROOM, FIFTH FLOOR,  
MUNICIPAL AUDITORIUM

### Session on Tuberculosis

#### OFFICERS OF SESSION

Chairman—JAMES ALEXANDER MILLER, New York

Secretary—CHARLES H COCKE, Asheville, N C

Wednesday, May 13—2 p m

Chairman's Address Some Modern Concepts of Tuberculosis  
JAMES ALEXANDER MILLER, New York

Pathogenesis of Tuberculosis (Lantern Demonstration)  
MAX PRINER, Oneonta, N Y

Case Finding Methods for the Diagnosis of Tuberculosis (Lantern Demonstration)  
J BURNS ANDERSON, JR, New York

Sanatorium Care of the Tuberculous  
L S PETERS, Albuquerque, N M

Compression Therapy Uses and Limitations (Lantern Demonstration)  
J J SINGER, St Louis

## THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will occupy the balcony around the exhibition floor of the Kansas City Municipal Auditorium. The same general arrangement of booths and decorations will be carried out as in former years. In addition to the groups of exhibits sponsored by the fifteen sections of the Scientific Assembly, there will be motion picture programs put on by the Sections on Ophthalmology and Orthopedic Surgery, a group of exhibits on traffic accidents and two special exhibits subsidized by the Board of Trustees.

Admission to the Scientific Exhibit will be limited to individuals wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

Following are the section representatives:

IRVING S. WRIGHT, New York, Section on Practice of Medicine

R. S. DINSMORE JR., Cleveland, Section on Surgery, General and Abdominal

H. CLOSE HFSSELTINE, Chicago, Section on Obstetrics, Gynecology and Abdominal Surgery

GEORGIANA DVORAK-THEOBALD, Oak Park, Ill., Section on Ophthalmology

J. L. MYERS, Kansas City, Mo., Section on Laryngology, Otology and Rhinology

F. THOMAS MITCHELL, Memphis Tenn., Section on Pediatrics

RALPH H. MAJOR, Kansas City, Mo., Section on Pharmacology and Therapeutics

J. P. SIMONDS, Chicago, Section on Pathology and Physiology

PETER BASSOE, Chicago, Section on Nervous and Mental Diseases

C. W. FINNERUD, Chicago, Section on Dermatology and Syphilology

PAUL A. DAVIS, Akron, Ohio, Section on Preventive and Industrial Medicine and Public Health

R. S. FERGUSON, New York, Section on Urology

R. L. DIVELEY, Kansas City, Mo., Section on Orthopedic Surgery

J. A. BARCFN, Rochester, Minn., Section on Gastro-Enterology and Proctology

S. W. DONALDSON, Ann Arbor, Mich., Section on Radiology

## Special Exhibit on Diabetes

The exhibit on diabetes will be carried out again this year along somewhat the same lines as last year. The committee in charge of the exhibit is composed of E. P. Joslin, chairman, Boston, Charles H. Best, Toronto, Louis I. Dublin, New York, Ralph H. Major, Kansas City, Mo., Howard F. Root, Boston, Bernard Smith, Los Angeles, and Russell M. Wilder, Rochester, Minn.

The exhibit will include all phases of the subject under the following headings: laboratory, statistics, pathology, physiology, surgery, diet, diabetic coma, insulin and summer camps for children, state and city diabetic programs.

In addition to continuous demonstrations on the foregoing subjects, there will be a special room set aside for short lectures and conferences of small groups of individuals. An outstanding corps of demonstrators will be on hand continuously throughout the week.

## Special Exhibit on Fractures

The exhibit on fractures is continued again after a lapse of several years. The special exhibit committee appointed by the Committee on Scientific Exhibit of the Board of Trustees for the Kansas City session is composed of Frank D. Dickson,

Kansas City, Mo., Walter Estell Lee, Philadelphia, and Kellogg Speed, chairman, Chicago, assisted by an advisory committee as follows:

ISIDORE COHN,  
New Orleans

H. EARLE CONNELL,  
Fairfield, Ala.

FREDERIC J. COTTON,  
Boston

WILLIAM DARRACH,  
New York

RICHARD B. DILLEHUNT,  
Portland, Ore.

EDRIDGE L. ELIASON,  
Philadelphia

LIO CLOESSER,  
San Francisco

GEORGE W. HAWLEY,  
Bridgeport, Conn.

MELVIN S. HENDERSON,  
Rochester, Minn.

JAMES M. HITZROT,  
New York

WILLIAM L. KELLER,  
Washington, D. C.

ROY D. McCURE,  
Detroit

FRANK R. OBER,  
Boston

DALLAS B. PHEMISTER,  
Chicago

J. SPENCER SPEED,  
Memphis Tenn.

The exhibit this year will be composed of the following subjects:

1. Making and Application of Plaster of Paris
2. Emergency Treatment for Transportation of Fractures of the Lower Extremities
3. Compression Fractures of the Spine
4. Fractures of the Radius—Lower End
5. Fractures of the Metacarpals and Phalanges

Demonstrations will be given continuously throughout the week. A special folder has been prepared for distribution in connection with the exhibit.

The following physicians will take part in the demonstrations:

Bertram S. Adams, Hibbing, Minn.  
R. I. Anderson, Richmond, Va.  
A. E. Bence, Wichita, Kan.  
Guy A. Caldwell, Shreveport, La.  
James J. Callahan, Chicago  
W. B. Carrell, Dallas, Texas  
F. Walter Carruthers, Little Rock, Ark.  
Freemont A. Chandler, Chicago  
Dwight T. Clark, Evanston, Ill.  
E. B. Cudney, Pontiac, Mich.  
Wallace S. Duncan, Cleveland  
John Dunlop, Pasadena, Calif.  
Donald C. Durman, Saginaw, Mich.  
James R. Elliott, Kansas City, Mo.  
C. B. Francisco, Kansas City, Mo.  
Alfred E. Gallant, Los Angeles  
J. A. Green, Rockford, Ill.  
Vernon L. Hart, Minneapolis  
H. Lewis Hess, Kansas City, Mo.  
Paul N. Jepson, Philadelphia  
Fred A. Jostes, St. Louis  
Albert Key, St. Louis  
J. M. King, Pittsburgh  
Marion L. Knefelter, St. Louis

Philip H. Kreuscher, Chicago  
James W. Martin, Omaha  
Duncan C. McKeever, Kansas City, Mo.  
Thomas C. Meany, Chicago  
Frank G. Murphy, Chicago  
W. B. Owen, Louisville, Ky.  
W. J. Potts, Oak Park, Ill.  
Warren R. Rainey, St. Louis  
Wells C. Reid, Goodrich, Mich.  
Dean L. Rider, Riverside, Ill.  
G. R. Rountree, Oklahoma City  
Robert D. Schrock, Omaha  
G. D. Schott, Sullivan, Ind.  
Lemuel D. Smith, Milwaukee  
James E. M. Thomson, Lincoln, Neb.  
Augustus Thorndike Jr., Boston  
Horace E. Turner, Chicago  
D. R. Ulmer, Terre Haute, Ind.  
Charles S. Venable, San Antonio  
Jay D. Byn, Grand Rapids, Mich.  
J. R. Watkins, Alhedeem, Wash.  
George A. Williamson, St. Paul  
W. Eugene Wolcott, Des Moines, Iowa

## SECTION EXHIBITS

## Section on Practice of Medicine

DWIGHT L. WILBUR and ALBERT M. SNELL, Mayo Foundation for Medical Education and Research, Rochester, Minn. *Deficiency states associated with gastro-intestinal diseases.* Exhibit of charts and transparencies showing clinical data, histories and photographs of cases illustrating the importance of abnormalities of the gastro-intestinal tract in production of deficiency and metabolic states.

A. E. BENNETT, C. A. OWENS, PAUL PERSON and BRUCE AUSTIN, University of Nebraska College of Medicine and Lutheran Hospital, Omaha. *Artificial fever therapy by means of Kettering hypertherm.* Exhibit of charts outlining indication and contraindication of artificial fever therapy, various diseases under experimental study, management of syphilis by combined fever and chemotherapy compared with malarial therapy, results of gonorrheal infections, arthritis and miscellaneous disorders. Photographs illustrating temperature elevation used in treatment, thermometric gradient fever studies of various tissues of the body, case studies showing results obtained in various diseases, thermal death time studies in meningococci.

WILLIAM A. GROAT and STELLA M. ZIMMER, Syracuse University, Syracuse, N. Y. *Basophilic leukemia* Exhibit of photomicrographs, natural color photomicrographs and statistical charts and graphs on studies of the blood and of bone marrow obtained by biopsy and autopsy from a case of acute myeloid leukemia with extreme basophilia (acute basophilic leukemia), also demonstrations of studies of so-called chronic basophilic leukemia and of the basophilic myelocytes, hemoblasts of Ferrata and of Di Guglielmo found in chronic myeloid leukemias generally.

J. DEWEY BISGARD and JOHN C. SHARPE, University of Nebraska College of Medicine, Omaha. *Studies in hematology* Exhibit of complete cytologic studies of the blood of (1) normal rabbits used as controls, fed with thyroid and administered liver by muscle mouth and vein, (2) totally thyroidectomized adult rabbits with anemia of myxedema, after thyroid feeding, and administered liver by muscle and vein, (3) totally thyroidectomized (cretins), including in all groups reticulocyte responses and hematocrit readings (4) illustrations of Wintrobe hematocrit tube and a chart for rapid and simple computation of results.

N. S. DAVIS III, Department of Pathology, Northwestern University Medical School, Chicago. *The incidence of arteriosclerosis in a large number of necropsies* Exhibit of charts illustrating the gross and age incidence of arteriosclerosis of the aorta, coronary arteries, arteriosclerotic heart disease, coronary thrombosis, arteriosclerotic and arteriosclerotic changes in the kidneys, cerebral hemorrhage and thrombosis in a large number of necropsies, and the importance of arterial disease or its results as a primary or contributory cause of death.

JOSEPH F. ELSEN, The Bronx Hospital, New York. *Bacillary dysentery, distal ileitis, chronic ulcerative colitis and nonspecific intestinal granuloma. Their common pathogenesis* Exhibit of a clinical, epidemiologic, bacteriologic, serologic and pathologic study, tracing the transition stages from acute bacillary dysentery to chronic distal ileitis, chronic ulcerative colitis and nonspecific granuloma. Typical and atypical forms of acute bacillary dysentery are described as well as the results of follow-up studies with special reference to the development of late lesions. One major epidemic (Flexner type of dysentery) and several minor outbreaks (Flexner and Sonne Duval types of dysentery) are included in this study together with practical application of this work in diagnosis and treatment.

W. F. HAMILTON, R. A. WOODBURY and H. T. HARPER, University of Georgia School of Medicine, Augusta. *Optical recording of human blood pressure* Exhibit of a manometer with complete set of auxiliary devices for showing how it works, also charts showing human and comparative blood pressure tracings.

ALAN L. BARACH, Presbyterian Hospital, New York. *The role of helium and oxygen in various types of dyspnea* Exhibit of charts and motion pictures showing the pathophysiology of pulmonary ventilation in severe continuous asthma, emphysema, pulmonary fibrosis, passive pulmonary congestion in heart failure, modification or relief obtained by inhalation of gas mixtures rich in helium or in oxygen, reduction of pathologically elevated intrapleural negative pressures with prevention or alleviation of edema in the lungs.

O. H. ROBERTSON and W. D. SUTLIFF, Department of Medicine, University of Chicago, Chicago. *The lesion of lobar pneumonia: a clinical and experimental study* Exhibit is divided as follows: 1. Early diagnosis shown by roentgenographic evidences and charts of physical signs in lobar pneumonia less than twenty-four hours after onset. 2. Evolution of consolidation shown by roentgenographic observations during the course of the disease in human beings. 3. Gross and microscopic lesions illustrating method of production of experimental lobar pneumonia in dogs. 4. Factors in recovery from lobar pneumonia in men and dogs. Schematic relationship of serum antibodies to the course of the disease. Photomicrographs illustrating the activity of polymorphonuclear phagocytes and macrophages in the clearing of focal lesions.

WILLIAM W. DUKE, Kansas City, Mo. *Thermophilus and actinophilus* Exhibit of motion pictures and photographs demonstrating abnormal reactions to the effect of heat and effort to light, together with etiologic and pathologic bases for a large proportion of cases of this description.

RUSSELL L. HADEN, Cleveland Clinic, Cleveland. *Mechanism of anemia* Exhibit of charts illustrating blood formation, circulation and destruction in all types of anemia, and natural color photomicrographs illustrating all variations of the red blood cells and all types of anemia.

GEORGE L. WALDBOTT, Detroit. *Allergic shock* Exhibit demonstrating its mechanism, factors determining its manifestations and clinical course, tabulation of clinical records of shock induced by means other than injection, photomicrographs of autopsy appearances of shock following injections, ingestion of food, inhalation of air-borne substances, differential diagnosis, laboratory studies during shock, prevention and treatment.

HENRY H. TURNER, University of Oklahoma School of Medicine, Oklahoma City. *Clinical and experimental endocrinology* Exhibit of photographs illustrating the various accepted types of endocrinopathies and results of treatment with some of the newer pituitary fractions: the effects of anterior pituitary growth hormone on pituitary dwarfism; the effects of the anterior pituitary sex hormones on genital aplasia associated with adipsogenital syndrome; the effects of the anterior pituitary-like principles on the descent of testes in patients with cryptorchism; the effect of partial adrenal resection, denervation and splanchnic section on patients with the pituitary-adrenogenital syndromes, or so-called pituitary basophilism of Cushing; the effect of the anterior pituitary adrenotropic factor on a patient with Addison's disease; numerous other clinical endocrinopathies.

EDWARD F. HARTUNG, JOHN CURRENCE, JOHN STUMP, JOHN STAGE DAVIS, OTTO STEINBOCKER and JOSEPH KOVACS, Arthritis Clinic, New York Post Graduate Medical School and Hospital, Columbia University, New York. *Chronic arthritis* Exhibit dealing with research on the blood in arthritis, especially the filament-nonfilament count, agglutinin and precipitin, plasma cholesterol, serum calcium, albumin globulin ratio, gastrointestinal factors in arthritis, especially teeth, gastric acidity, gallbladder and colon, postural corrections, especially of visceroptosis, the prevention of deformities, physical therapeutic measures.

R. FRANKLIN CARTER, CARL H. GREENE, J. RUSSELL TWISS, New York Post Graduate Medical School and Hospital, Columbia University, New York. *Types of gallbladder and liver disease and of associated jaundice* Exhibit of charts, models and drawings demonstrating distinct types of gallbladder disease together with records of cases from the clinic, models and drawings of conditions with associated jaundice with case records from the clinic, motion pictures of normal and pathologic physiology of the gallbladder.

ROBERT M. STECHER, Department of Medicine, Western Reserve University Medical School and City Hospital, Cleveland. *Arthritis of the hand* Exhibit of photographs and roentgenograms of the hand demonstrating different types of arthritis and some other diseases which at times may be confused with arthritis. The characteristic appearances as well as atypical changes due to these diseases are shown, with special emphasis on the time element in these changes.

#### Section on Surgery, General and Abdominal

H. S. PLUMMER, W. M. BOOTHBY, S. F. HAINES, J. DEJ. PEMBERTON, E. C. KENDALL, W. A. PLUMMER, W. C. MACCARTY, R. M. TOVELL and A. H. BULBULIAN, Mayo Clinic, Rochester, Minn. *Diseases and functions of the thyroid gland* Exhibit shows the important contributions to the present knowledge of diseases of the thyroid gland: presents statistical data in graphic form dealing with the occurrence, frequency and mortality of the disease and the results of medication and surgery; includes color photographs and life masks of patients with myxedema before and after treatment and photographs and motion pictures of patients with exophthalmic goiter showing the results of medical and surgical treatment; includes samples of material illustrating important steps in the separation of thyroxine from thyroid glands; models illustrating the surgical anatomy of the thyroid gland; motion pictures and drawings illustrating important steps in partial thyroidectomy with methods of preserving the recurrent laryngeal nerve and parathyroid glands; colored wax casts and photomicrographs of specimens showing the pathology of the thyroid gland and demonstration, by means of models, photographs



and motion pictures, regional methods of anesthesia for thyroidectomy

JOHN O BOWER, J C BURNS and H A MENGLE, Department of Research Surgery, Temple University School of Medicine and General Hospital, Philadelphia *Treatment of spreading peritonitis complicating acute perforative appendicitis* Exhibit of drawings illustrating steps in operative technic and pathologic changes, charts depicting mortality delay, mortality-laxatives, antibody content of convalescent serum, bacteriology of spreading peritonitis and blood mixture in spreading peritonitis charts showing results of treatment of spreading peritonitis by perfringens antiserum, lyophilized convalescent serum, immediate and delayed operation photographs and microscopic slides of sections of appendiceal abscesses, display of therapeutic technic and appliances, lyophilized serum and apparatus for administering dextrose solution intravenously, motion pictures showing operative technic in human beings, operative technic in animals intestine under influence of laxatives, pigeon testing for antibody content of convalescent blood, and venesection and intravenous infusion of dextrose

CHARLES S WHITE and J LLOYD COLLINS, George Washington University School of Medicine, Department of Surgery, Washington, D C *Treatment of empyema* Exhibit of an illuminated model illustrating the open treatment of empyema after the method described by Connors, charts and motion pictures of resection of ribs, packings and redressings

J ROSS VEAL, Louisiana State University School of Medicine, New Orleans *Arteriography and venography in peripheral vascular diseases* Exhibit of selected arteriographs and venographs from a study of many cases of peripheral vascular diseases, including senile arteriosclerosis, Buerger's disease, scleroderma, frost bite, congenital arteriovenous anastomosis, aneurysms, axillary vein thrombosis, intermittent claudication, gangrene and varicose veins Normal arteriographs and venographs of each region are used for comparison with the pathologic states The technic of arteriography is illustrated by motion pictures

CHARLES B HUGGINS, W J NOONAN and B H BLOCKSON, Department of Surgery, University of Chicago, Chicago *Distribution of red and yellow bone marrow and the reticulo-endothelial system in the bone marrow* Exhibit of cleared gross specimens of animals showing distribution of the reticulo-endothelial system in the bone marrow indicating that a single plan of arrangement for the blood forming system runs through these various species, results of experiments showing how the reticulo-endothelial system is caused to increase and fatty marrow to decrease, charts and photographs showing the temperature relationships in bone marrow and the development of the homeothermous state in the albino rat

W W BUCKINGHAM, Kansas City Municipal Tuberculosis Hospital, Kansas City *Surgical collapse in pulmonary tuberculosis* Exhibit of preoperative and postoperative roentgenograms of chest showing indications for and results obtained with the following surgical procedures phrenicotomy (temporary and permanent), pneumolysis (open and closed), plumbage (paraffin packs), thoracoplasty (partial anteriolateral and complete), combinations of the foregoing procedures

J W CUTLER, Henry Phipps Institute, University of Pennsylvania, Philadelphia *Pneumolysis—single cannula technic* Exhibit of instruments roentgenograms and models of characteristic adhesions complicating artificial pneumothorax therapy in pulmonary tuberculosis demonstration of instruments for severing adhesions complicating pneumothorax therapy through a single opening into the chest

R RUSSELL BEST, FREDERICK HICKEN and HOWARD B HUNT Departments of Anatomy, Surgery and Roentgenology University of Nebraska College of Medicine Omaha *Cholangiographic studies of the gallbladder and biliary ducts* Exhibit showing technic of making cholangiograms at operating table by motion picture and color transparencies anatomy and histology of common duct cholangiograms demonstrating spasm of lower end of common duct cholangiograms taken at the operating table and following operation aiding in the diagnosis of biliary tract lesions mouldage display of organic obstructive lesions of the biliary tract

EARL A GRAHAM and J J SINGER Barnes Hospital St Louis *Chest tumors and cysts* Exhibit of roentgenograms,

photographs, drawings, pathologic specimens, charts and short case histories showing different types of chest tumors and cysts with diagnostic procedures, types of operations, and so on

ALFRED A STRAUSS, Chicago *Surgical diathermy for carcinoma of the stomach and rectum* New methods of radical surgical procedures for carcinoma of colon and stomach Exhibit of wax models showing the newly devised instruments for surgical diathermy of both the stomach and the rectum, with a machine to illustrate its use, wax models of specimens removed, histologic slides and photographs showing the changes that go on in the carcinoma cells and surrounding area from surgical diathermy and the effect on the reticulo-endothelial system which probably accounts for the immunity produced against carcinoma by this method, drawings and photographs of the technic of ileostomy for removal of rectosigmoid carcinoma, the use of the ileostomy in perforating diverticulitis of the sigmoid and ulcerative colitis, wax models of specimens removed

G M DORFANCE, Saint Agnes Hospital, Philadelphia *Treatment of fractures of the femur in children by means of elevation of the bed approximately 45 degrees* Exhibit of bed with patient in place, roentgenograms showing after-treatment and follow up

ARNOLD S JACKSON, Jackson Clinic, Madison, Wis *Diseases of the thyroid gland* Exhibit of slides illustrating various types of colloid, adenomatous, nontoxic and toxic intrathoracic and exophthalmic goiter, malignant conditions including sarcoma and carcinoma, iodine hyperthyroidism, cretinism, myxedema and photomicrographs of the various pathologic conditions of the thyroid gland, charts illustrating sources of error in basal metabolic rates, distribution of cretinism, study of large number of cases of toxic adenoma as regards cardiac and other observations, gross pathologic specimens, display of instruments used in thyroidectomy, display of 'patent medicine' cures for goiter and colored motion picture of technic of thyroidectomy

CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM, K J HEVICHSEN, Chicago *Collapse therapy in pulmonary tuberculosis* Exhibit of roentgenograms of the chest before and after collapse therapy by various methods, pneumothorax, intrapleural pneumolysis, phrenicectomy and thoracoplasty, demonstration of surgical technic by motion pictures, charts illustrating relative end results in collapse therapy

#### Section on Obstetrics, Gynecology and Abdominal Surgery

RUSSELL VON L BUNTON and HERMAN A SHELANSKI, Philadelphia General Hospital, Philadelphia *Study of the incidence of Trichomonas vaginalis infection in a series of cases, with cultural characteristics of the organism and results of a form of treatment* Exhibit of charts, dealing with the incidence of Trichomonas vaginalis infection and the incidence in male prostatic secretion, method of culture of the parasite together with a microscopic demonstration of the parasite, results obtained by using silver picrate in kaolin as a therapeutic agent

WILLIAM B THOMPSON, The William E Branch Clinic, Los Angeles *Cesarean section in Los Angeles County for 1934-1935* Exhibit of charts dealing with an analysis covering all abdominal deliveries done in 119 hospitals and maternity homes, incidence, the indications of the duration of labor and of rupture of membranes with their relation to mortality and morbidity for both classic and low cervical sections, percent ages of deliveries conducted by doctors of medicine, osteopaths, chiropractors midwives and others percentage of cesarean sections and the mortality for each group

WILLIAM F MENGERT and E W SCHELDROP, University Hospitals, Iowa City *Mechanics and anatomy of uterine support* Exhibit of colored motion pictures depicting descent of the uterus in a warm cadaver and during vaginal hysterectomy in the living as the various supporting structures are cut charts showing results of similar experiments on cadavers, pelvic cross coronal and sagittal section of the adult female pelvis with accompanying descriptive charts, similar sections of female fetuses with descriptive charts

E C HAMBLIN and B CARTER Department of Obstetrics and Gynecology Duke University Hospital and School of

Medicine Durham, N C *Studies of the endometrium in functional abnormalities of menstruation and its response to endocrine therapy* Exhibit of water color diagrams presenting concepts of the hormonology of menstruation, photomicrographs illustrating studies of the endometrium in menometrorrhagia, menorrhoea and other functional disorders of menstruation, effects of certain types of endocrine therapy on the endometrium in these conditions

W E CALDWELL, HOWARD C MOLOY and D A D'ESORO Sloane Hospital for Women and Department of Obstetrics and Gynecology, Columbia University, and Roentgen Ray Department Presbyterian Hospital, New York *Clinical and roentgenologic recognition of anatomic variations in female pelvis and their obstetric significance* Exhibit of illustrations of pelvic variations and the mechanism of labor with precision stereoscope to demonstrate the roentgenologic technic advised

#### Section on Ophthalmology

BERTHA A KLIEN Rush Medical College Chicago *Malformations of the human eye* Exhibit of illustrations of clinical observations and photomicrographs of histologic details of malformations of the human eye, including atypical colobomas of the choroid the superior conus, aberrant nerve fibers colobomas and grooves of the optic nerve, orbital appendices of the sheaths of the optic nerve, aberrant retinal vessels and microphthalmus

ALBERT L BROWN, Children's Hospital Research Foundation, Cincinnati *Experimental uveitis and corneal ulcers* Exhibit of gross specimens, photographs and photomicrographs showing uveitis produced in rabbits' eyes, corneal ulcers produced in rabbits' eyes, showing ulcers in untreated animals and in animals treated with parenteral administration of typhoid vaccine with and without aspiration of the anterior chamber to increase intra ocular antibody concentration

BRITTAIN F PAYNE and CONRAD BERENS, Lighthouse Clinic, New York *Certain phases in the development of the eye in the human embryo* Exhibit of a series of specimens of human embryos demonstrating the formation of the primary optic vesicle and invagination of the surface ectoderm to form the crystalline lens and the development of the secondary optic vesicle, further development of the human eye demonstrated by various intermediate states up to term

LAURENCE D REDWAY, Institute of Ophthalmology, Presbyterian Hospital, New York *Color photography of the human eye and adnexa* Exhibit of colored transparencies of the external eye and of the fundus oculi, both normal and pathologic

ARTHUR J BEDELL, Albany, N Y *Modern photography of the eyes* Exhibit of photographs of the external diseases of the eye in black and white colored and infra-red, newest developments in fundus photography plain and colored plates

A E BRALEY, State University of Iowa, College of Medicine, Iowa City *Tumors of the eyelids* Exhibit of transparent colored photographs and stereophotographs of tumors of the eyelid, charts showing frequency, location and differential diagnosis

PHILLIPS THYGESON and FRANCIS I PROCTOR, University of Iowa, Iowa City *Differential diagnosis of trachoma* Exhibit of colored drawings and photographs illustrating clinical appearance and pathology of the conjunctiva and cornea in the various stages of trachoma, biomicroscopic appearance of trachomatous keratitis, clinical points and laboratory observations useful in the differential diagnosis of trachoma from follicular conjunctivitis, folliculosis, ocular peniphagus and other conjunctival diseases

EDWIN M NEHER, Research Department University of Utah, Salt Lake City *Origin of spectacle or brille in the rattlesnake* Exhibit describing the embryology of the snake's eye with special reference to the origin of the spectacle secondary features added to the basic vertebrate eye according to the habits environment and requirements of the various animals, the brille, or spectacle, is a secondary feature which has been added for the protection of the snake's eye

EDMUND B SPAETH, Graduate School of Medicine University of Pennsylvania, and Wills Eye Hospital Philadelphia *Ophthalmic plastic surgery* Exhibit of photographs illustrating ophthalmic plastic cases before and after correction

J E SMITH, C E RICE and HARVEY D LAMB, Missouri Trachoma Hospital Rolla, Mo *Histology and therapeutics of trachoma* Exhibit of photomicrographs and microscopic sections dealing with histology of trachoma, especially emphasizing histology of corneal trachoma, histology of tear sacs removed in trachoma patients, the caruncle and the caruncle area, and of the tarsus removed in tarsectomy operations, study of the Von Prowazek-Halberstaedter inclusions of trachoma through photographs and mounts, therapeutic side of trachoma, statements of histories

ALAN C WOODS FRANK B WALSH and TULLOS O COSTON, Wilmer Ophthalmological Institute, Johns Hopkins Hospitals and University Baltimore *Photography of the eye* Exhibit of motion pictures of eye operations, colored stereoscopic plates and paintings of external eye and fundus conditions

#### MOTION PICTURE PROGRAM

The following motion pictures will be shown on a definite schedule in an area adjacent to the exhibits of the Section on Ophthalmology

RAMON CASTROVIEJO, New York Keratoplasty

RAY K DAILY, Houston, Texas Cataract Extraction

WALTER H FINK, Minneapolis The Management of Strabismus

J O McREYNOLDS, Dallas, Texas Ophthalmic Operations in Color

J E SMITH Rolla, Mo Trachoma in the Native White Population of the United States

CHARLES N SPRATT, Minneapolis Eye Operations

CLIFFORD B WALKER, Los Angeles Combined Galvanic and Diathermic Treatment of Separated Retina

#### Section on Laryngology, Otology and Rhinology

RAPHAEL SCHILLINGER, Brooklyn *Roentgenologic aspects of mastoiditis* Exhibit of roentgenograms of the mastoid bone showing anatomic classification, bone specimens, charts and drawing demonstrating importance of this anatomic classification in predicting the course of the disease, roentgenograms of pathologic mastoids with discussion of film interpretation, case histories and operative data roentgenograms of pathologic mastoids treated by roentgen irradiation, showing the value of the roentgen ray as a therapeutic agent, discussion of 'syndrome of favorable action' as an indication for this type of therapy, limitations of this method of treatment, use of roentgen irradiation in the treatment of otitis media as a prophylaxis against mastoiditis

M F ARBUCKLE, St Louis *Diagnosis and treatment of diseases of the pulmonary tract and esophagus* Exhibit demonstrating methods employed in the study of disorders of the pulmonary tract and esophagus for the purpose of diagnosis and application of therapeutic measures with particular reference to the results of physical radiologic and direct endoscopic examination, examples of disorders of the pulmonary tract, such as lung abscess, bronchiectasis, tumors, congenital lesions, impacted foreign body, both opaque and nonopaque, and esophageal disorders, such as congenital or acquired lesions, malignant disease and impacted foreign body

L W DEAN, ARTHUR W PROETZ C C BUNCH, LOUIS J BIRNBERGER JAMES B COSTEN, LOUIS K GUGGENHEIM DOROTHY WOLFF and HARRY N GLICK Department of Otolaryngology, Washington University School of Medicine, St Louis *The pathologic and normal gross and microscopic anatomy the embryology of the ear nose pharynx and larynx* Exhibit of gross anatomic specimens of the nose pharynx larynx and ear cadaver specimens illustrating operations on the ear nose and throat, gross and microscopic specimens showing normal and pathologic anatomy of the ear, embryologic specimens of the ear, nose and throat, transparent reconstruction of the spiral ganglion

#### Section on Pediatrics

C ULYSSES MOORE, Portland, Ore *Variation in development found in a rickets survey* Exhibit showing a study of preschool children and the new-born, clinical, laboratory, roentgenologic and photographic observations, comparison of osseous development of twins

I NEWTON KUGELMASS, New York *Modifying milk for infants digestion* Exhibit showing graphic interpretation of

experimental and clinical studies of milk physiology in infant feeding involving the mechanism of milk clotting, the character of curd formation, the index of milk digestibility, the adaptation of milk to infants' digestion, the relation between milk digestion and infant constitution, the biochemical evaluation of milk digestion in vivo and in vitro correlated with normal and artificial feeding

ARCHIBALD L HOYNE, Municipal Contagious Disease Hospital Board of Health and Cook County Hospital, Chicago, and N S FERRY, Parke, Davis & Co, Detroit *Meningococcus antitoxin* Exhibit of graphs, charts and photographs illustrating research development and clinical application of meningococcus antitoxin starting with the growth of cultures and carrying the exhibit through the preparation of toxin in flasks, tests of toxin, tests on antitoxin and finally giving the therapeutic results on the human being

PERCIVAL NICHOLSON WALTER ESTELL LEE and MAX M STRUMIA, Bryn Mawr Hospital Bryn Mawr, Pa *Mechanical lesions of the appendix as a cause of appendicitis* Exhibit of charts showing the results of clinical and anatomic examinations of a number of appendicitis cases in children, emphasizing the importance of mechanical obstruction to the lumen as etiologic elements of appendiceal colic

GEORGE M LYON Cabell County Medical Society and Board of Education of Cabell County, Huntington, W Va *Medical participation in a school health program* Exhibit showing a plan of medical participation in the county wide school program as carried on in Cabell County of West Virginia by the Committee on School Health Problems of the Cabell County Medical Society

JULIAN D BOYD and C L DRAIN, State University of Iowa, Iowa City *Nutrition and the teeth* Exhibit of observations correlating the resistance of tooth decay with the diet habits of the individual, data concerning the oral flora, the mineral metabolism and intrinsic tooth structure as related to resistance or susceptibility of tooth decay, data indicating a close relationship between the resistance of teeth to decay and the general level of health of the individual with diet playing an outstanding part in the maintenance of each

S D KRAMER, Long Island College of Medicine, Brooklyn *Poliomyelitis—epidemiology, pathology and immunity* Comparative study of the value of several methods for active immunization Exhibit demonstrating by means of charts and graphs the experimental evidence on which the concepts of the disease are based, clinical understanding of the disease is fairly clear, as are some of the epidemiologic concepts but a number of these concepts are based on extremely sparse data, and an effort is made to add to these data, the enthusiasm recently aroused in active immunization against the disease has made a comparative study of a number of methods for active immunization against the disease imperative, no proved method available for active immunization against poliomyelitis, two proved instances of survival of virus in the nasal secretions thirteen to sixteen days after onset of illness are illustrated

A W SNOOK, Stanford University Hospitals, San Francisco *Stages duration and prognosis of glomerular nephritis in childhood* Exhibit of colored charts showing typical microscopic urinary sediments in the initial, latent degenerative and terminal stages of glomerular nephritis, charts showing the Addis classification of glomerular nephritis with various possibilities that may occur after the onset of the initial stage specimens of the Addis tubes for albumin determination and sediment counts

JESSE R GERSTLEY KATHARINE M HOWELL and DAVID J COHN Michael Reese Hospital, Chicago *The infant stool* Exhibit of charts tables, drawings, cultures, microscopic slides under the microscope and models showing effect of different carbohydrates on the infant stool, as well as their effect on metabolism of calcium and phosphorus

#### Section on Pharmacology and Therapeutics

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF CHEMISTRY AND SOILS, Washington, D C *Medical products from mold fermentation fruit juice, selenium cottonseed meal determination of gossypol for toxicity and biologic values* Exhibit of bottles of products, specimens, charts, diagrams, flow sheets, and other material

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE *Screw worm myiasis of men and animals and the therapeutic use of surgical maggots and their excretion* Exhibit of colored bromide enlargements and paintings of the various stages of the screw worm fly, cases of screw worm infestation in man and various animals and scenes indicating the methods of treatment or control advocated by the bureau, equipment, photographs and charts illustrating investigational work on the therapeutic use of maggots and their excretions

L G ROWNTREE, J H CLARK, ARTHUR STEINBERG and N H EINHORN, Philadelphia Institute for Medical Research, Philadelphia, and A M HANSON, Fairbault, Minn *The role of the thymus and pineal glands in growth and development* Exhibit of charts, photographs, cages with rats, motion pictures and slides showing the role of the thymus and pineal glands in growth and development

A G BELTMAN, Department of Surgery, University of Oregon Medical School, Portland, Ore *The tannic acid silver nitrate treatment for burns* Exhibit of charts and photographs showing in detail the method of application of the treatment and showing its points of superiority, charts showing laboratory work, photographs depicting plastic reconstruction following burns, other interesting features of plastic surgery

WILLARD O THOMPSON, ARTHUR DEAN BEVAN, NORRIS J HECKEL, PHEBE K THOMPSON and SAMUEL G TAYLOR III, Chicago *Glands of internal secretion* Exhibit of charts and photographs covering recent original work on the pathologic physiology of the thyroid, the pituitary gland, including the calorogenic activity of the anterior lobe the nature of Addison's disease and its treatment with an active adrenal cortex extract, anomalies of sex organs, including a consideration of the effect of anterior pituitary-like substance on undescended testicles, and prostatic implants in the anterior chamber of the eye

ARTHUR C CLASEN, Kansas City, Mo *Blood amylase, lipase and phosphatase determinations in hepatic and pancreatic disturbances* Exhibit of charts and graphs showing blood amylase and lipase curves in experimental pancreatitis, also amylase, lipase and phosphatase curves in clinical cases of liver diseases

BAYARD T HORTON, GEORGE E BROWN\* and GRACE ROTZ, Mayo Foundation for Medical Education and Research Rochester, Minn *Hypersensitiveness to cold* Exhibit of a clinical and experimental study illustrating the various phases of hypersensitiveness to cold, the local and systemic manifestations constitute distinct clinical syndromes 1 Those in which the manifestations, both local and general suggest those produced by histamine 2 Those in which paroxysmal hemoglobinuria and vasomotor and agglutinative features are outstanding Experimental work gives evidence of the chemical nature of these reactions, patients of both groups are amenable to treatment by desensitization to cold

#### Section on Pathology and Physiology

G C SUPPLEE and S ANSBACHER, Research Division, The Borden Company, New York *Pure lactoflavin, an entity of the water soluble vitamin B complex* Exhibit of specimens of pure crystalline lactoflavin as isolated from milk, properly equipped with a source of radiation revealing invisible ultraviolet rays only showing solutions of known and pure lactoflavin exposed alternately to invisible ultraviolet rays and natural light thereby, permitting visual instruction regarding the fluorescent characteristics of lactoflavin and adaptation of the fluorescent principle as a means of quantitative estimation

THE ARMY MEDICAL MUSEUM Office of the Surgeon General United States Army, Washington, D C *Color photography* Exhibit of three color separation photography of gross and microscopic material to record the natural color in medical subjects, method of preparing prints lantern slides and transparencies, with actual demonstration of printing the three colors and combining them to make complete prints

JULIUS S WEINGART, Des Moines, Iowa *The technique of the postmortem examination* Exhibit of charts and motion pictures showing the best technique for postmortem examination the proper type of instruments to be used the importance of study of the gross anatomic changes, methods of facilitating restoration of the body etc

\* Deceased

REUBEN L. KAHN, University Hospital, Ann Arbor, Mich. *Tissue immunity* Exhibit of charts presenting results of experiments on tissue immunity, illustrating the immunologic role of the tissues in the nonimmune state, the period of incubation and the immune state, the role of the tissues in active and passive immunity, the relation between tissue immunity, and humoral immunity, immunity in the adult and in the young.

HARRY C. SCHMEISSER and JOSEPH L. SCIANNI, University of Tennessee Pathological Institute, Memphis. *The dignity of the autopsy* A photographic exhibit in four sections: 1. History of the autopsy from antiquity to the nineteenth century; 2. History of the autopsy from the nineteenth century to date; 3. Autopsy of today; 4. Uses of the autopsy.

ARTHUR F. ABT, CHESTER J. FARMER and ELIZABETH SMITH, Northwestern University Medical School, Chicago. *Metabolism of cevitamic acid of infants and children* Exhibit of charts showing normal values for reduced cevitamic acid in the blood plasma of infants and children from birth to 13 years of age, correlation of these determinations with capillary skin fragility values, cases of subclinical scurvy and of active scurvy with values for blood plasma, urinary excretion and capillary skin tests, a microchemical method for cevitamic acid determinations, tolerance tests obtained by using this method, apparatus for determining capillary skin fragility, pictures of active and healing scurvy treated with cevitamic acid.

E. SPIEGEL, M. SPIEGEL-ADOLF and M. G. WOHL, Temple University School of Medicine, Philadelphia. *New biophysical methods* (a) Galvanometric determination of hyperalgetic zones. Exhibit showing that in visceral pain the spinal cord segments receiving impulses from diseased internal organs are in a state of hyperexcitation, as is manifested by increased potentials in the corresponding dermatomes. Demonstration of measurement of skin potentials and charts illustrating results. (b) Measurement of convulsive reactivity. Determination of minimal energy necessary to produce convulsions in animals, effect of various drugs.

ROY R. KRACKE and HORTENSE GARVER, Emory University, Ga. Blood dyscrasias with particular reference to leukocyte types. Exhibit of colored drawings showing the individual leukocyte types of normal and abnormal blood with colored plates of groups of pathologic cell types, plates illustrating the blood pictures of the various blood dyscrasias with typical and atypical phases, charts showing descriptions of the various hematologic pictures seen in blood diseases, microscopic demonstration of the rare type of leukemias.

MAX CUTLER and OTTO SAPHIR, Tumor Clinic and Department of Pathology, Michael Reese Hospital, Chicago. *Transferring tumor cells during biopsy on malignant tumors* Exhibit of photographs, photomicrographs, models, diagrams, lantern slides and motion pictures, illustrating the transference of tumor cells during biopsy, with special reference to carcinoma of the breast, surgical technique, special staining methods to illustrate presence of tumor cells on knife blades, models of breasts showing lines of recurrence and their relationship to this subject.

#### Section on Nervous and Mental Diseases

GROVES B. SMITH, Beverly Farm, Inc., Godfrey, Ill. *Mental hygiene in relationship to general practice* Exhibit of graphs and charts illustrating the problems of general practice so far as neuropsychiatric and mental hygiene aspects are concerned, diagnostic procedures, community responsibilities, importance of economic relationship.

HENRY NEWMAN, Stanford University School of Medicine, San Francisco. *Neurologic diagnostic instruments* Exhibit of a portable chronaximeter and an instrument for accurate determination of vibratory sensibility, demonstration together with charts showing the circuits employed and details of construction.

ERNEST SACHS and LEONARD T. FURLOW, Washington University School of Medicine, Barnes and St. Louis Children's Hospitals, St. Louis. *Brain and spinal tumors in patients who are non-specific from symptoms* Exhibit of pathologic specimens of brain and spinal cord tumors, clinical abstract of each case, pathologic diagnosis with roentgenograms.

FREDERIC A. GIBBS, WILLIAM G. LENOX, HALLOWELL DAVIS, ERNA L. GIBBS and ALBERT GRASS, Harvard Medical School, Boston. *The electro-encephalogram and its application to the*

*study of epilepsy* Exhibit showing graphic recording of the electrical potentials of the brain of a human subject by an apparatus similar to the electrocardiograph except that there is higher amplification of the electrical potentials, and records are made by means of an ink-writing pen on a moving paper tape, apparatus will be attached to a subject and continuous records made demonstrating the type of wave to be seen in conditions of normal cerebral activity and as a result of certain physiologic alternations, records of pathologic conditions, especially epileptic seizures, will be shown.

W. JAMES GARDNER, Neurosurgical Division, Cleveland Clinic, Cleveland. *Hereditary brain tumors* Exhibit of an elaborate family tree of five generations of more than 200 members demonstrating the transmission of these tumors as true mendelian dominants affecting some thirty-seven members, case reports of the affected members, autopsy material from four verified cases with microscopic studies of a fifth case specimen from a patient with bilateral acoustic tumors, consisting of serial sections through the entire head, demonstrating the location of these tumors.

#### Section on Dermatology and Syphilology

R. A. VONDERLEHR, Division of Venereal Diseases, United States Public Health Service, Washington, D. C. *Untreated syphilis in the male Negro. A comparative study of treated and untreated cases* Exhibit records the results of the examination of a group of syphilitic male Negroes who have never received modern treatment for their infections, compared with a group of presumably nonsyphilitic Negroes from the general population in the same area. Original observations included thorough clinical, roentgenologic and laboratory studies to ascertain the extent of the involvement of the various organs and structures of the human body in the late syphilitic process, comparison of groups of Negroes who have received adequate and inadequate treatment, a comparative analysis of the outcome in treated and untreated cases.

HAMILTON MONTGOMERY, Mayo Clinic, Rochester, Minn. *Histopathology of various types of cutaneous tuberculosis* Exhibit of colored photomicrographs and schematic drawings illustrating the pathologic differences between various types of cutaneous tuberculosis, charts on the classification of tuberculosis and on the pathology of the conditions.

THEODORE CORNBLEET, Chicago. *Pigment and vitamin C* Exhibit of charts illustrating that vitamin C in the skin is intimately associated with pigment and does not seem capable of remaining as such in the skin without the presence of pigment, vitamin C absorbs the actinic or pigment producing rays and in this process is used and converted into a new product, it appears that pigment furnishes an anchor to vitamin C, which in turn is an effective shield against photochemical injury.

GEORGE M. MACKEE and ANTHONY C. CIPOLITARO, Skin and Cancer Unit, New York Post Graduate Medical School and Hospital, Columbia University, New York. *Cutaneous tuberculosis and tuberculids* Exhibit of colored photographs illustrating all clinical varieties of skin tuberculosis and tuberculids.

FRED WISE and CHARLES R. REIN, Skin and Cancer Unit, New York Post Graduate Medical School and Hospital, Columbia University, New York. *Lichen ruber monileformis* Exhibit of wax models, illuminated photographs, ordinary photographs, microscopic sections, and the like on lichen ruber monileformis.

GEORGE M. LEWIS and MARY E. HOPFER, Skin and Cancer Unit, New York Post Graduate Medical School, Columbia University, New York. *Treatment of ringworm of the scalp* Exhibit of photographs and charts illustrating the various diagnostic and therapeutic measures necessary for the competent management of tinea capitis, cultural determination of the causative fungus, experimental data embodying biologic and immunologic concepts.

SAUEL AYRES, JR., NELSON PAUL ANDERSON and PAUL D. FOSTER, Los Angeles. *Dermatologic versus surgical treatment of carbuncles and furuncles* Exhibit of charts, diagrams and photographs illustrating a clinical and statistical study of the methods of treating furuncles of the face and carbuncles, as commonly practiced by dermatologists and by surgeons, with especial reference to technique, duration of illness, cosmetic results and mortality.

### Section on Preventive and Industrial Medicine and Public Health

FRED E. ANGLE, WILLIAM H. ALGIE and S. J. SCHILLING, Kansas City, Kan. *Bruce's disease in man (undulant fever) and in animals (Bang's disease)* Exhibit of charts, colored photographs, drawings, pathologic specimens and lantern slides depicting the progress of the disease since its discovery and the progress made in the study of the disease in animals and in man, incidence, distribution, etiology, pathology, diagnostic methods and salient features, treatment and particularly the relationship between the disease in domestic animals and in man.

UNITED STATES PUBLIC HEALTH SERVICE, Washington, D. C. *Undulant fever* Exhibit of charts and drawings dealing with the etiology, diagnosis, prevention and treatment of undulant fever.

W. J. McCONNELL and A. J. LANZA, Metropolitan Life Insurance Company, New York. *Diseases of the lungs caused by inhalation of dusts* Exhibit showing various harmful dusts used in industry, with roentgenograms of their effects on the lungs, together with a demonstration of methods of determining hazardous dusts in industry.

HENRY FIELD SMYTH and HENRY FIELD SMYTH JR., Laboratory of Hygiene University of Pennsylvania School of Medicine, Philadelphia. *Safe practices in industrial use of carbon tetrachloride* Exhibit of data and material gathered on experimental animals exposed to controlled concentrations of carbon tetrachloride vapors: measurements of vapor concentrations in several plants using or manufacturing the material, physical examinations of a number of workers exposed in industry to the material, photomicrographs of significant animal tissue, such as liver, kidney, sciatic nerve and ocular muscle.

LOUIS I. DUBLIN, Metropolitan Life Insurance Company, New York. *Public health aspects of cardiovascular-renal conditions* Exhibit of charts showing geographic variation in mortality from these conditions, trend of mortality from 1911 to 1935 by age groups, differential mortality by age and sex, mortality of white and colored persons compared, chances of eventually dying from these conditions, incidence of cardiovascular-renal conditions compared with other causes of death, proportion of all deaths caused by cardiovascular-renal conditions, analysis of cardiovascular-renal conditions according to specific organs affected, heart, kidneys, arteries, and other organs.

WILLIAM F. SNOW and WALTER CLARK, American Social Hygiene Association and New York City Department of Health, New York. *Recent advances in the attack on syphilis and gonococcal infection* Exhibit of motion pictures, lantern slides, graphs and epidemiologic case studies, data on state and local regulations and programs, requirements for applying the United States Public Health Service recommendations for a venereal disease control program, and material illustrating the physician's part in these programs.

### Section on Urology

WALTMAN WALTERS, HUGH CABOT, VIRGIL S. COUNSELLER and JAMES T. PRIESTLEY, Mayo Foundation, Rochester, Minn. *Successful methods in the surgical treatment of hypospadias and ectrophy of the bladder* Exhibit of illustrations showing results in the treatment of various types of hypospadias obtained by the operations of Bucknall, Ombredanne and Thiersch, transparencies of patients with ectrophy of the bladder before and after surgical treatment of ureteral transplantation to the colon and cystectomy, motion pictures showing technique of operations for hypospadias and ureteral transplantation.

OSWALD S. LOWSLEY, Department of Urology, the James Buchanan Brady Foundation, New York Hospital, New York. *Kidney operations* Exhibit of motion pictures, photographs and specimens of kidney operations, such as nephrostomy, nephropexy, heminephrectomy and repair of kidney rupture.

CARCINOMA REGISTRY COMMITTEE OF THE AMERICAN UROLOGICAL ASSOCIATION, Army Medical Museum, Washington, D. C. *Five year end results in bladder tumors* Exhibit of tables and charts showing five year end results in cases registered in the Bladder Tumor Registry of the American Urological Association, charts showing correlation of end result with size and grade of tumor and with treatment, photomicrographs illustrating typical tumors of varying grade with results obtained.

CLINTON K. SMITH and A. LLOYD STOCKWELL, Children's Mercy Hospital, Kansas City, Mo. *Enuresis* Exhibit of drawings, diagrams and charts demonstrating normal bladder physiology, diagnostic methods, clinical types, clinical results, and general summary of data.

GERSHON J. THOMPSON, Mayo Clinic, Rochester, Minn. *Transurethral surgery* Exhibit of photographs, wax models and charts portraying the technique involved in the operative treatment of patients suffering with vesical neoplasms, vesical calculi, ureteral calculi, vesical neck obstructions caused by benign and malignant prostatic enlargements, congenital deformities, contractures and other conditions.

FREDERICK LIEBERTHAL, Department of Genito Urinary Surgery, Northwestern University Medical School, Chicago. *Renal and ureteral stone* Exhibit of water color sketches, roentgenograms and charts selected from several hundred cases of renal and ureteral stone showing the various forms of the latter and the pathologic changes produced by them in the various portions of the kidney and its capsules, emphasis is placed on an appreciation of detailed pathologic data from a clinical standpoint, especially as regards diagnosis and treatment and the relation of these pathologic changes to operative technique.

### Section on Orthopedic Surgery

CHARLES E. SEVIER, ATHA THOMAS and GEORGE K. COTTON, University of Colorado School of Medicine, Denver. *Internal derangements of the knee joint* Exhibit of drawings, roentgenograms and anatomic and pathologic specimens, demonstrating the anatomy and physiology of the knee joint, also etiology and pathology of the more common types of intrinsic derangements, surgical procedures demonstrated by wax models and illustrations.

H. WINNETT ORR, Lincoln, Neb. *The use of skeletal traction with fixation in plaster-of-paris casts in fractures, compound fractures, joint injuries and leg lengthening operations* Exhibit of models in plaster and color and roentgenograms of diagnostic and end results, short case abstracts for some illustrative cases. Demonstration also to emphasize certain points with reference to the prevention and control of infection in the wound treatment. A collection of historical books in the treatment of fractures.

CHARLES MURRAY GRATZ, New York Post Graduate Hospital, Columbia University and City Hospital, New York. *Bio mechanics* Exhibit of photographs showing adhesions in the fascial planes of the body, particularly in relation to the sciatic nerve, photomicrographs of the fibers of the fascial planes and their covering, biomechanical tests of the fibers and the results of extensive research work summarized, also application to fascial transplantation noted, roentgenograms showing the normal distribution of air in the fascial spaces contrasted with roentgenograms showing arthritic and sciatic patients, histologic, biomechanical and clinical data presented to substantiate the belief that adhesions in the fascial spaces interfere with the functional mechanics of the soft tissues, particularly nerves, and may be responsible in certain cases for the production of pain.

ALBERT B. FERGUSON and FREDERICK L. LIEBOLT, New York Orthopedic Hospital, New York. *Lateral roentgenography of the femoral neck* Exhibit of a new film holder for readily obtaining the lateral view together with illustrations of the application of the method in orthopedic conditions, such as fracture epiphysiolysis, coxa plana, arthritis, tuberculosis, arthroplasty and congenital dislocation.

J. E. M. THOMSON and C. FRED FERCIOT, Lincoln, Neb. *Beaded Kirschner wire in the fixation of bone fragments* Exhibit of roentgenograms and illustrations portraying the technique of applying beaded Kirschner wires for the reduction and immobilization of certain fractures, such as oblique fractures of long bones and comminuted fractures in which there is a large loose fragment or fragments, and for use in immobilizing fragments after bone shortening operations.

LAURENCE JONES, Menorah Hospital, Kansas City, Mo. *Lateral roentgenography of the neck of the femur and its clinical application to the treatment of intracapsular fractures of the neck of the femur* Exhibit dealing with the problems involved in the taking of lateral roentgenograms of the neck of the femur, methods used in the past and difficulties associated with them, a new technique consisting of a different position and a specially



designed curved cassette with incorporated radiographic filter clinical examples, the application of the method to bring about improved reduction

WILLIS C CAMPBELL, J S SPEED JOSEPH I MITCHELL and J F HAMILTON, Dr Willis C Campbell Clinic, Memphis *Bone tumors* Exhibit of photographs of specimens photomicrographs, roentgenograms and case histories of various cases showing bone tumors

EARL D MCBRIDE McBride Clinic Oklahoma City *The conservative operation for bunions* Exhibit of motion pictures and of plaster and anatomic models demonstrating the technic and results in the conservative operation for bunions

ROBERT L PRESTON and MARJORIE B PATTERSON New York *An experimental study of acute staphylococcal suppurative arthritis* Exhibit of pictures, pathologic specimens and charts illustrating experimental study of various pathologic joint and systemic changes that occur during the course of disease in cases treated by the various methods now in use, comparison of the effectiveness of these methods of treatment in cases of infection by strains of staphylococci of widely varying pathogenicity, criteria for selecting the preferable method of treatment for a given clinical case

W EUGENE WOLCOTT, Des Moines Iowa *Circulation in the head and neck of the femur* Exhibit of transparencies made from films of the femoral heads injected with opaque material demonstrating the circulation entering the head of the femur through the ligamentum teres the circulation entering the neck and ultimately the head of the femur by way of the posterior superior and inferior visceral capsular arteries and the anastomosis between these vessels anatomic specimens demonstrating dissected hip joints

FRED H ALBEE New York *Recent advances in the treatment of fractures of the hip* Exhibit of roentgenograms showing end results of cases, diagrams and anatomic models showing the methods used in securing active stabilization of the hip and union in fracture of the neck of the femur with special emphasis placed on the treatment of those cases in which aseptic necrosis of the head occurs

Motion Picture Program Motion pictures dealing with orthopedic surgery will be run on a regular schedule in a space adjoining the exhibits of the section

#### Section on Gastro-Enterology and Proctology

HARRY SHAY, JACOB GERSHON-COHEN and SAMUEL S FELS, Philadelphia *Experimental studies in gastric physiology in man* Exhibit of serial roentgenograms showing pyloric function as controlled locally by duodenum and upper small intestine as modified by gastric secretory response as a test of Cannon's theory, as controlled by extrinsic factors its reciprocal behavior with the duodenum, its substitution in the resected stomach its functional relation to antrum and duodenum cap its quantitative response to duodenal stimulation its action with solid and liquid meals, its control by regional intestinal stimulation, also gastric emptying after gastro enterostomy

A C SCOTT SR M W SHERWOOD and G V BRINDLEY Scott and White Clinic, Temple Texas *Cancer of the rectum* Exhibit of moulages, charts and pictures showing development of cancer from benign to malignant lesions

RUDOLF SCHINDLER MARIE ORTMAYER and JOHN F RENSHAW University of Chicago Chicago *Chronic gastritis* Exhibit of metal tubes, containing gastroscopic pictures illuminating box containing lantern slides roentgenograms and gastrophotographs, charts, different types of flexible gastroscopies and books

E L EGGLESTON and B C WHYTE Battle Creek Sanitarium, Battle Creek Mich *Behavior of gastric intestinal tract under conditions of autonomic imbalance* Exhibit of photographic reproductions of serial gastro intestinal films illustrating types of behavior under different degrees of imbalance charts showing signs symptoms and physical observations

DAVID J SANDWEISS Detroit *Comparative value of dietetic and parenteral treatment of peptic ulcer* Exhibit of charts showing treatment with histidine hydrochloride synodal vaccine and distilled water injections, oral administration of silicon dioxide (sand) and diet alkali regimen charts showing comparative end results

J DONALD MILLIGAN, Pelton Clinic of Elgin, Elgin, Ill *Diagnosis and management of upper gastro-intestinal problems* Exhibit of gastric ulcer problems, gastric cancer problems, duodenal ulcer problems, small bowel obstruction problems, also diagnosis and differential diagnosis of each of these diseases with history and physical laboratory and roentgen studies

C W MAYO and E G WAKEFIELD, Mayo Clinic, Rochester, Minn *Disseminated polyposis of the colon, with a new combined surgical procedure for treatment of selected cases* Exhibit showing a familial review of a number of cases with polyposis, clinical and pathologic follow up and surgical technic in handling such cases

HENRY A RAFSKY, Lenox Hill Hospital, New York *The clinical significance of pathologic changes in biliary tract disease* Exhibit of charts illustrating the carbohydrate tolerance studied in a series of patients with biliary tract disease and post-cholecystectomy sequelae data illustrating that cholecystectomy in many instances resulted in marked improvement in the carbohydrate tolerance, charts showing various types of blood sugar curves and case reports giving clinical interpretation

CLAUDE C TUCKER and C ALEXANDER HELLWIG St Francis Hospital Wichita, Kan *Etiology and histology of pruritus ani* Exhibit of photographs and photomicrographs showing the different stages of pruritus ani and inflammatory changes in the anal canal found in cases of pruritus ani, demonstration of presence of nerve corpuscles explaining the extreme sensitivity of the anal papillae

WARREN T VAUGHAN, Richmond, Va *Food allergy* Exhibit of posters graphs, drawings and photographs outlining a comprehensive routine for study of food allergy skin tests, biologic food groups, leukopenic index, food diary, echelon dietary regimen, relative importance and reliability of these, therapeutic program and results

HORACE W SOPER St Louis *Special types of therapy in gastro-enterology* Exhibit of charts, roentgenograms, specimens and instruments dealing with special types of therapy employed in gastro enterology, including ulcerative colitis rectal diathermy, amebic dysentery, biliary drainage and cardiospasm

#### Section on Radiology

GEORGE LEVENE and HENRY H LERNER Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine, Massachusetts Memorial Hospitals, Boston *Roentgenoscopic appearance of the heart* Exhibit of moving mechanical models that reproduce the appearance of the heart as seen under the fluoroscope including normal conditions sinus arrhythmia, extrasystoles heart block, auricular fibrillation, thromboembolism coronary disease, aortic stenosis aortic insufficiency and tricuspid insufficiency electrocardiograms of these conditions and technic of fluoroscopic study

HAROLD G F EDWARDS Shreveport La *Radium and roentgen rays in the treatment of cancer* Exhibit of transparent tinted photographs of malignant tumors before treatment, photomicrographs of tumor and photographs showing radium in situ and the end results secured by such treatment, when cases have been treated with the roentgen ray, the skin reaction is shown

WENDELL G SCOTT and SHERWOOD MOORE Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St Louis *Clinical and physiologic value of kymography in diseases of the heart and chest* Exhibit of roentgenograms, charts, photographs of apparatus and short case reports dealing with the clinical and physiologic information gained from roentgenokymograms in diseases of the heart and chest kymograms in aortic insufficiency, aortic stenosis hypertrophic cardiomyopathy aneurysms of ascending arch of the aorta pleuropericardial adhesions myxedema and adhesive pericarditis kymograms of the diaphragm showing the movements in atelectasis pneumonia asthma, emphysema hiccuping eructation, coughing and with adhesions, kymoscope for demonstrating the movements recorded on the kymograms

HARRY H BOWING and ROBERT E FRICKE Mayo Clinic Rochester Minn *The treatment of rectal carcinoma with radium* Exhibit of drawings and charts showing the location and types of lesions encountered, location and method of maintaining the radium applicators in position for the required treatment time the age incidence the location of the lesions the grade of pathologic change encountered and the results obtained



DAVID S DANN, Menorah Hospital Cancer Clinic, Kansas City, Mo *A practical guide to therapy in cancer* Exhibit of graphic charts of the body divided in the sagittal and coronal planes with the treatment of choice, surgery, irradiation or both, for each anatomic location of the tumor, indicated in colors, photographs illustrating the accomplishments of treatments in various types of cancer

WILLBUR BAILEY, Department of Radiology, University of Southern California School of Medicine, Los Angeles *Anomalies and fractures of the vertebral articular processes* Exhibit of a series of such lesions of the vertebral articular processes showing the anomalous centers of ossification which are occasionally seen opposite the tips of the inferior articular processes of the lumbar vertebrae Partial fusion or complete lack of fusion of such ossicles may be confused with fracture Isolated fractures of the articular processes may occur in the same region, but from the history and the roentgen appearance a differential diagnosis can nearly always be made

J C KRAVING, O A BRINLS and HARRY L WITZ, City of Detroit Receiving Hospital, Detroit *Primary carcinoma of the lung* Exhibit of roentgenograms of cases of primary carcinoma of the lung, with resume of clinical history and other observations, together with photomicrographs and gross pathology, demonstrating the pathology with particular emphasis on cell type

E A MERRITT, EDGAR M MCPHEA and R RHEFT RATHBON, Warwick Clinic, Garfield and Emergency Hospitals, Washington, D C *The application of the Contard principles of radiation therapy in malignancy* Exhibit of colored lantern slides showing the intense blistering skin reactions as well as the primary lesions before and after treatment of typical cases of carcinoma of the breast stomach, colon, rectum and cervix, bladder and skin, as well as a group of miscellaneous malignant conditions

J M MARTIN and CHARLES L MARTIN, Baylor University Hospital, Dallas, Texas *Radiation therapy in carcinoma of the lower lip, mouth, tongue, larynx and pharynx* Exhibit of enlarged photographs of actual cases of cancer before, during and after treatment accompanied by charts and drawings, models of cancer lesions accompanied by photographs, photomicrographs, drawings and legends, photographs illustrating the various steps in cancer therapy

H O MAHONEY and BARRY J ANSON, Northwestern University Medical School, Chicago *Radiographic study of anatomic sections* Exhibit of a representative selection of roentgenograms and corresponding photographs of anatomic sections, coronal, transverse and sagittal, so arranged and labeled as to show the advantages which radiography provides in the study of anatomy, revealing of anatomic structure not readily shown by usual methods of study, recording of macroscopic differences among organs, course of the fascicles of muscles and the arrangement of the trabeculae of bone, making possible a complete and thorough study of anatomic sections without disturbing the tissue or destroying the sections

#### Group Exhibit, University of Kansas School of Medicine

RALPH H MAJOR, Department of Medicine *Insulin absorption* Exhibit of charts showing observations on insulin absorption

EDWARD H HASHINGER, Department of Medicine *Influence of hypophysis on blood platelets* Exhibit of charts showing influence of hypophysis on blood platelets

GRAHAM ASIFR, Department of Medicine *Simultaneous phonocardiograms and electrocardiograms* Exhibit of tracings and charts showing simultaneous phonocardiograms and electrocardiograms

LOGAN CLENDENING, Department of Medicine *History of medicine* Exhibit of American books important in the history of medicine

THOMAS G ORR, Department of Surgery *Breast amputation* Exhibit of drawings illustrating technic for breast amputation

NELSE F OCKFRELAD and HJALMAR E CARLSON, Department of Surgery *Effect of morphine on the human ureters* Exhibit of tracings showing the effect of morphine on the human ureters

E C PADGETT, Department of Surgery *Reconstruction of ears* Exhibit of photographs, diagrams and wax models showing total reconstruction of ears

H C TRACY, Department of Anatomy *Anatomic models* Exhibit of anatomic models of brain stem and heart embryos

L A CAIKINS, Department of Obstetrics *Size of placenta* Exhibit of charts showing size of placenta with causes and effects of variations

FRANK C NEFF, G V HERRMAN and ROBERT FREDEEN, Department of Pediatrics *Transfusion of infants* Exhibit of apparatus and charts describing a method of transfusions of infants

SAM ROBERTS, Department of Otorhinolaryngology *The pyriform sinus* Exhibit showing a new surgical approach to the mediastinum through the pyriform sinus

O J DIXON, Department of Otorhinolaryngology *Mastoidectomy* Exhibit of drawings, roentgenograms and photographs showing a new type of mastoidectomy wound closure

O O STOLAND and A M GINSBERG, Department of Physiology *Studies of coronary circulation* Exhibit of charts and graphs describing technic and experimental work on coronary circulation

F C HRIWIG, Department of Pathology *The hepatorenal syndrome* Exhibit of charts and photomicrographs showing clinical and pathologic studies of the hepatorenal syndrome

EMSLY T JOHNSON, Department of Pathology *Liver damage due to drugs* Exhibit of gross specimens and photomicrographs of experimental work and results of necropsy in liver damage due to drugs

#### SYMPOSIUM ON TRAFFIC ACCIDENTS

This group of exhibits is intended to give the physician practical information in the treatment of traffic accidents

SPECIAL EXHIBIT *Emergency treatment for transportation of fractures of the lower extremity* Exhibit presented by Special Exhibit Committee on Fractures

HARRY E MOCK, Northwestern University School of Medicine, and St Luke's Hospital, Chicago *Skull fractures* Exhibit of charts and photographs illustrating prevention, etiology, pathology and management of skull fracture cases, stressing the part automobile accidents are playing in skull fractures and preventive measures which should be adopted during the first twenty-four hours

SAUEL McLANAHAN, Baltimore *Automobile door handle injuries* Exhibit of roentgenograms, photographs and case histories, depicting a number of unusual instances of serious injury caused by the projecting type of door handle currently used on automobiles, a collection of newspaper clippings describing such injuries to man and beast, illustrations of dangerous types of door handles, and of improved types which have been suggested

CLAIRE L STRAITH and WILLIAM A LANCE, Detroit *Plastic surgery* Exhibit of photographs showing technic and results in plastic surgery Special emphasis is placed on the treatment of crushing facial injuries such as those so often encountered by surgeons in treating victims of motor car accidents, apparatus will be shown which will hold facial bone fragments and reshape crushed faces

ALBERT L LEMOINE, Kansas City, Mo *A motion picture "Safety First"*

#### EDUCATIONAL CLASSIFICATION

##### Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than the individuals and which are intended to show progress in the particular activities with which those institutions deal

These exhibits are not open to medal awards, but a special certificate of merit is presented to the best exhibit in this classification

AMERICAN HEART ASSOCIATION, New York *A group of three exhibits on studies of the revved human hearts, consisting of motion pictures and charts, the pathology of rheumatic fever consisting of charts and specimens, the treatment of congestive heart failure, are shown by lantern slides*

HEALTH CONSERVATION ASSOCIATION, Kansas City, Mo. Exhibit of large diagram of the organization showing the unification and coordination of several local volunteer health educational agencies, illustrations of program of the association

UNITED STATES PHARMACOPEIA *The Eleventh Revision of the United States Pharmacopoeia* Exhibit of pharmacopoeial preparations and chemicals and a demonstration of the use of these in prescription practice

AMERICAN PHARMACEUTICAL ASSOCIATION, Washington D C *The Notional Formulary* Exhibit of new and valuable products of the Sixth Edition of the National Formulary

COMMITTEE ON DEAFNESS PREVENTION AND AMELIORATION, American Academy of Ophthalmology and Otolaryngology *Deafness prevention and amelioration* Exhibit of instruments, charts, posters and diagrams illustrating methods of detecting and determining amount of hearing loss by modern methods, a working model of acoustically treated testing room to make possible accuracy in diagnosing disturbances of hearing audiometers and hearing aids, their use in the field of deafness prevention and amelioration lantern slides and films illustrating educational talks in this field, available literature on subject

AMERICAN SOCIETY FOR THE HARD OF HEARING Washington, D C Exhibit of posters charts, maps and distribution of pamphlets on the needs of the hard of hearing from an educational, vocational and economic standpoint

AMERICAN SOCIETY FOR THE CONTROL OF CANCER New York *Constitution and cancer* Exhibit of charts and other material showing the constitutional factors in production of cancer in animals, constitutional factors showing the incidence of cancer in different strains, production of cancer by carcinogenic agents in relation to its constitutional condition subject of transplantation and its physiologic factors

NATIONAL CONFERENCE ON NOMENCLATURE OF DISEASE, New York *National Conference on Nomenclature of Disease* Exhibit of placards explaining the origin and constitution of the National Conference on Nomenclature of Disease the design of the nosologic classification a record room set up according to various plans, together with placards showing cost of installation, graphic illustrations of the simplicity of the system and a spot map showing distribution of the Standard Classified Nomenclature of Disease

MISSOURI STATE COMMITTEE ON MATERNAL WELFARE St Joseph, Mo *Maternal welfare* Exhibit of charts maps and diagrams of maternal and neonatal mortality throughout the United States, a clock or sand glass calling attention to the fact that each time the minute hand circles the clock so many mothers and infants die specimens of one to nine months fetuses, slips to sign for literature

NATIONAL TUBERCULOSIS ASSOCIATION New York *The tuberculin test* Exhibit of apparatus used in making the tuberculin test, panels and graphs showing how test is made reproductions of reactions statistical graphs and other material illustrating the significance of the tuberculin test

AERO MEDICAL ASSOCIATION *Scientific apparatus used in determining fitness of airplane pilots* Exhibit of apparatus for testing coordination, mental reflexes, fatigue and other phenomena

ADVISORY BOARD FOR MEDICAL SPECIALTIES Exhibit of charts graphs and literature describing the work of the Advisory Board for Medical Specialties and its member organizations

AMERICAN ASSOCIATION OF MEDICAL SOCIAL WORKERS, Chicago Exhibit of charts and reports of studies on some social factors in certain diagnostic groups function of the social worker in relation to illness organization of social service departments in hospitals

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia Exhibit of charts describing the work and progress of the National Board of Medical Examiners

ASSOCIATION OF AMERICAN MEDICAL COLLEGES Chicago *Medical Education* Exhibit of charts giving information on the various activities of this association, such as accomplishments of students in medical schools correlation of work in medical schools with work done in art colleges, analysis of entrance credentials and study of applicants for admission to medical schools

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION, New York *Occupational therapy* Exhibit of photographs, diagrams, charts, case abstracts and other means of demonstrating graphically a few of the methods of aiding the recovery of the sick by means of occupations of various kinds

AMERICAN PHYSIOTHERAPY ASSOCIATION *Analysis of the exercise treatment of the foot* Exhibit showing significant points in the kinesiology of the foot analysis of foot exercises, contraindications for the use of certain foot exercises, demonstration of foot exercises

NEW YORK STATE INSTITUTE FOR THE STUDY OF MALIGNANT DISEASES, Buffalo *Cancer—what is being done about it* Exhibit of colored transparencies showing various types of cancer, accompanied by short histories, description of lesions, pathology, diagnosis, treatment and results, doll exhibit showing the treatment of cancer by surgery, roentgen ray and radium, and a 45 Gm radium bomb (pack) made to scale, a miniature x-ray machine and miniature surgery exhibit, a radon pump demonstrating the pumping process, various forms in which radium and radon are used gold radon seeds glass bulbs, needles, plaques tubes, cards with cancer hints for the physician to apply in caring for his patients, wax models of cancer found in various parts of the body

### American Medical Association

The exhibits from the headquarters group of the American Medical Association will be found in various parts of the hall These exhibits are not open to awards

BUREAU OF MEDICAL ECONOMICS Exhibit of charts showing distribution of physicians, university and college student health service

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS Exhibit of graphs, maps, charts, pictures and mechanical apparatus dealing with the resurvey of medical education, training of interns and resident physicians, certification of specialists, survey of schools of occupational therapy, physical therapy and laboratory technique the hospital register the special survey of tuberculosis hospitals, and other activities of the Council on Medical Education and Hospitals

COUNCIL ON PHYSICAL THERAPY Exhibit consists of four sections 1 Visual demonstration with a plethysmograph showing changes in volume of tissue fluids in fingers after application of heat 2 Visual demonstration of some fundamental concepts of short wave diathermy Apparatus constructed by secretary of the Council 3 Demonstration by means of model bearing on the importance of posture in relation to disease 4 Charts dealing with the Council's educational program

BUREAU OF HEALTH AND PUBLIC INSTRUCTION Exhibit of charts, maps and literature showing the work of the Bureau and the relation of public health to the Social Security Act

### AWARDS

There will be two classes of awards, consisting each of (a) a gold medal, (b) a silver medal, (c) a bronze medal and (d) three certificates of merit

[NOTE—The special (subsidized) exhibits (diabetes and fractures) and the exhibits of the headquarters of the American Medical Association are not open to awards]

#### CLASS I

Awards in class I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation

#### CLASS II

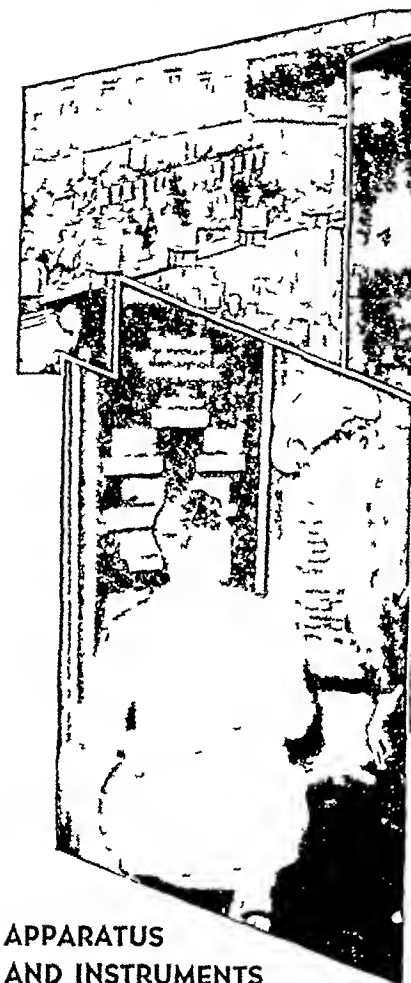
Awards in class II are made for exhibits that do not exemplify purely experimental studies, which are judged on basis of the excellence of correlating facts and excellence of presentation

Medals are awarded only to individuals A special certificate of merit will be awarded to the best educational exhibit in the Educational Classification (this includes exhibits by national organizations)

The Committee on Awards will be composed of five persons It will make the decisions on Wednesday, May 13

The names of the members of the Committee on Awards will not be available until after the decisions have been published

# THE TECHNICAL ★ EXPOSITION ★



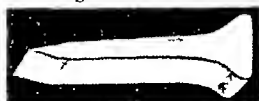
## APPARATUS AND INSTRUMENTS

### Short Wave and Elliott Machines

While the A. S. Aloe Company will display a complete line of instruments and equipment for the doctor and hospital, special interest will be centered in demonstration of the Aloe Short Wave Diathermy, the Elliott Treatment Machine and the new Magnuson Counter Rotary Bone Saw. A special discount on rustless steel instruments will be offered during the convention. A new suite of American Walnut furniture will be featured. Booths 20, 21 and 82.

### A Rib-Back Blade

The Bard-Parker Company will demonstrate in Booths 32 and 33 the outstanding features of the Rib-Back surgical blade which



incorporates new standards of sharpness, rigidity and strength and eliminates operating interruptions due to glove cutting and blade rejects.

### Splint Kit for Doctors' Cars

The Frank S. Betz Company will have on exhibit in Booth 141 a new and complete all steel office group, a complete display of surgical instruments, the latest make and design short wave diathermy and majestic portable electro-surgical unit, physicians' genuine leather bags and an emergency first aid splint kit as approved by Dr. Kellogg Speed for physicians' cars and ambulances.

(Continued on next page)

WHAT are the new improvements in products and services needed by the physician in the practice of medicine? What forward strides have been made in research by manufacturers? How do their technical advances help to serve the doctor better?

THIS year the Technical Exhibits at the American Medical Association Convention will aid in answering these questions. They will permit the visiting physician to come into personal contact with the products and representatives of more than 200 leading firms—manufacturers of pharmaceuticals and biologicals, publishers of medical books, makers of instruments, apparatus and electrical equipment, as well as dietetic products, and many other highly specialized articles and services.

ALMOST invariably, one will find well qualified representatives in each booth eager to discuss subjects of mutual interest. At many exhibits will be scientific investigators and skilled technicians who conducted the research on which the exhibit is based.

THE Exposition will be open from 8:30 A. M. to 6:00 P. M. each day, closing Friday at noon. These hours, together with the close proximity of the Technical Exposition to the Scientific Exhibit and all meeting places, will make it unusually convenient for the physician to take full advantage of the stimulating and educational opportunities offered by the exhibits.

— WILL C. BRAUN, Superintendent of Exhibits



### New Improved A S R Surgeon's Blade

After months of experiment, during which time prominent medical authorities were constantly consulted this Keener more uniform Surgeon's Blade was developed. It fits all standard surgical handles old and new.



A complete line of these blades—nine types in all—will be exhibited in booth 167. Samples for test purposes will be supplied.

### A New Kind of Surgical Knife

Proper steel heat treating and good sharpening processes is relieved in the Beaver knife will be explained by Rudolph Beaver, Inc. Waltham Mass. in Booth 231. Beaver blades are not water blades, but are stronger and thicker blades and the mechanism is very simple. All the various blade shapes to fit the different stainless steel handles will be shown.

### New Clinical Camera

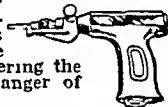
A new clinical camera will be displayed by the Burton Manufacturing Company at Booth 261. The camera is specifically designed for the exacting work of intra and extra cavity photography and is already widely used. It especially appeals to the practitioner because it is almost foolproof and may be operated by any one without previous photographic experience.

### Castle Lights and Sterilizers

A brand new light for physicians' use in examination, treatment and minor operative work will be shown at the Castle Booths 102 and 129. It is radically new in design and though inexpensive gives a cool color corrected light which almost equals the fine Spot Lights and Major Lights which Castle makes for surgeries. A big line of Major Lights and "Full-Automatic Cast in Bronze Sterilizers will also be displayed in profusion.

### Cayo Power Instruments

In booth 218 the Cayo Brothers will demonstrate their bone instruments and explain the technique they use in various operations. Among the features worthy of note will be the Cayo Method of entering the surgical field without danger of contamination.



### Passive Vascular Exerciser

The Cincinnati Scientific Company will demonstrate the Passive Vascular Exerciser Unit for stimulating the development of collateral arterial circulation in the extremities of patients with organic arterial diseases. An interesting demonstration will be made at their booth No. 256 of the effect of the rhythmic alternation of environmental pressure upon an artificial circulation.



### Improved Respirators and Oxygen Tents

At Booth 35 Warren E. Collins, Inc. will demonstrate the latest developments in Adult and Infant Drinker Respirators. The Benedict-Roth Metabolism

Apparatus has many improvements which include direct vital capacity readings. The new Collins Oxygen Tent with added improvements for simplicity and economy will also be on display. Courteous technicians will give demonstrations and answer all questions.

### Sample Surgical Blades

Call at Booth 199 for your free sample of the better Surgeons' detachable blade—Crescent Products of the Crescent Mfg. Co. of Fremont Ohio. Representatives will tell you why Crescent blades are preferred by Surgeons and how over two thousand hospitals are now saving 20 to 25% by their purchases of Crescent blades.

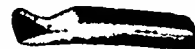
### Sutures for Special Purposes

Davis & Geck, Inc. will show their complete line of sterile surgical sutures with atraumatic needles suited for tonsil, thyroid, obstetrical, circumcision, plastic eye, ureteral and renal work—also ribbon gut and their new line of dental sutures. See the films from their Library of Surgical Motion Pictures to which many new subjects have been added. Booth 37.



### New Fracture Equipment

Aluminum X-Ray Splints Hyperextension Frames and other fracture equipment will be exhibited in booth 84 by the DePuy Manufacturing Company. Radiographers and Fracture Surgeons will find this exhibit very interesting.



Trained men will be in attendance to explain the advantages of new equipment.

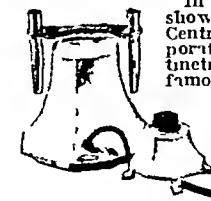
### Nasal Guard for Atomizers

The DeVilbiss Company, manufacturers of medicinal atomizers, have reserved Booths 113 and 114 for a complete showing of their line of atomizers and vaporizers for both home and professional use. A prominent feature of the DeVilbiss Exhibit will be the recently developed DeVilbiss Nasal Guard which prevents any excess pressure in the nasal passages during prescribed self-treatment.

### Acousticon Hearing Aids

The Dictograph Products Company, Inc. will give practical demonstrations of the new Amplified Air and Bone Conduction Acousticon hearing aids and explain the special service available for patients. Also in Booth 165 will be a display of the Telematic Jr. modern intracommunication system for the professional man's office, consultation room and any other part of the building desired.

### The New Gomco Centrifuge



In Booth 211 will be shown the new Gomco Centrifuge which incorporates a number of distinctive features. The famous line of Circumcision Clamps will also be shown and any questions pertaining to the technique required will be answered by capable persons in charge.

### Improved Respirators

In Booth 210 a new respirator collar arrangement which makes it possible for one person to put a patient into a respirator without assistance will be demonstrated by J. H. Emerson. This will be shown in connection with interesting demonstrations of the Emerson Respirator. Representatives skilled in the problems of artificial respiration will be present. Other hospital and research equipment will be displayed.



### Will Display Gas Machines

The McKesson Appliance Company invites you to visit their booths Nos. 216-217. Here they will have on display the latest advances in anesthesia metabolism, oxygen therapy and allied equipment.

### To Show New Apparatus

In addition to their regular line of kymometers and oxygen therapy equipment the Heidbrink Company will display for the first time this year their new Cabinet Model, a marvel of convenience and efficiency. Visitors interested in the latest developments in gas anesthesia or oxygen therapy equipment will do well to call at Booth 203 and obtain a complete demonstration by competent representatives.

### Orthopedic Appliances

The W. E. Isle Company will display the latest prosthetic and orthopedic appliances in their booth, No. 209. The exhibit will feature the Isle Superior Artificial Limb with Natural Action, Sponge Rubber Foot, surgical supports and Adjustable Bradford Frame.

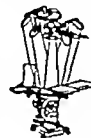


### New Pelton Sterilizer

In Booth 202 the Pelton & Crane Company will show a complete line of sterilizers, operating lights and fountain euspidors. A feature of this year's exhibit will be the new Pelton Tri-Plex Sterilizer which includes built-in instrument sterilizer, automatic autoclave and modern handsome cabinet.

### Late Model Operating Table

The remarkable performance of the Operay Multicolumn light with flexible swivel offset hanger will be demonstrated in combination with the extensive surgical conveniences of their new operating table in the Scanlan-Morris Company's exhibit booths 153 and 154. New electric sterilizers and representative items of their new line of surgical furniture and hospital equipment will also be displayed.



### Chevalier Jackson Instruments

The George P. Pilling exhibit will afford an opportunity to examine a modern complete showing of thoracic instruments.

## LIST OF EXHIBITORS ★

FIRM NAME	aisle	SPACE No.	FIRM NAME	aisle	SPACE No.
Abbott Labs. North Chicago Ill.	D	89 & 90	Bard Parker Co. Inc. Danbury Conn.	B	32 and 33
Allison Co. W. D. Indianapolis	B	30	Baum Co. W. A. New York	F	136
Aloe Co. A. S. St. Louis	B & D	20 21 & 82	Bausch & Lomb Opt. Co. Rochester N. Y.	C	62
A. M. A. Periodicals and Books	T	132	Beaver Inc. Rudolph Waltham Mass.	I	231
Amer. Bakers Assn. Chicago	F	130	Becton Dickinson & Co. Rutherford N. J.	G	186-187-188-189-190
Amer. Can. Co. New York	J	252 and 253	Bell & Howell Co. Chicago	I	194
Amer. Cystoscope Makers. New York	I	230	Betz Co. F. S. Hammond Ind.	F	141
Amer. Gas Accumulator Co. Elizabeth N. J.	D	99	Bilhuber Knoll Corp. Jersey City	D	72
Amer. Hosp. Supply Corp. Chicago	G	171	Blakiston's Son & Co. Philadelphia	E	107
Amer. Institute of Laundering, Joliet	H	215	Borchardt Malt Extract Co. Chicago	D	98
Amer. Optical Co. Southbridge Mass.	C	47 & 48	Buck X. Ograph Co. St. Louis	C	44
Amer. Safety Razor Corp. New York	G	167	Burdick Corp. The Milton Wis.	B	18
Amer. Seating Co. Grand Rapids Mich.	F	146	Burton Mfg. Co. Chicago	J	261
Amer. Sterilizer Co. Erie Pa.	B	22	Calco Chemical Co. Bonad Brook N. J.	G	184
Appleton Century Co. D. New York	C	52	Cambridge Instr. Co. New York	F	159
Armand Co. The Des Moines	B	24	Cameron Surg. Specialty Co. Chicago	C	53
Armour and Co. Chicago	F	142	Camp & Co. S. H. Jackson Mich.	B	19
Aznoes Natl. Phys. Exchange Chicago	E	107	Carnation Milk Sales Co. Milwaukee	D	92 & 93



many new brain and eye, ear nose and throat instruments, and, of course, the well-known Chevalier Jackson bronchoscopic instruments made by this firm. Their pneumothorax apparatus includes a wide choice of both hospital and portable types and accessories. Visit Booth 106.

### Improved Food Conveyors

At Booth 181 the Prometheus Electric Corporation will display a complete line of improved food conveyors sterilizing equipment and infra-red equipment with new patented 3 heat control. New model sterilizers with east bronze boilers, fully automatic heat control and other features will also be displayed and explained.

### Simplified Pivot Leg Splint

The J. R. Siebrandt Mfg Co will feature at their exhibit Booth 206, an improved Reduction Frame designed by Dr. R. A. Griswold of Louisville, Ky. While the frame assures accurate anatomic reduction and firm fixation, it is noted for its simplicity and adjustability. They will also show the Simplified Pivot Leg Splint, which is the original rocking leg splint equipped with scale traction and easy to apply.

### Surgical Apparatus

The J. Sklar Manufacturing Company, makers of surgical instruments and surgical apparatus, will exhibit in Booths 76 and 77. They will show their complete line of American Made Stainless Steel as well as pumps and special apparatus including Davidson's Pneumothorax Apparatus, Barks Automatic Direct Blood Transfuser, Dr. Printz's New Hospital Suction Unit, Tompkins Portable Rotary Compressor and other specialties of interest to physicians and surgeons.

### Suction and Pressure Apparatus

C. M. Sorensen Company will have on display, in Booth 150 several interesting models of combinations of Suction and Pressure Apparatus also allied accessories for tonsil irrigation, and Dr. Schullinger's new apparatus for displacement filling of nasal sinuses.

### Cast Cutter to Be Shown

The Cary Cast Cutter will be shown and demonstrated by Zimmer Manufacturing Company in Booth 143. This is a new hand cast cutter which needs only to be seen in use to be appreciated. A complete line of the modern fracture appliances will also be on display. All doctors are invited to this booth.



### Electromedical Apparatus

Progress in the design of apparatus for x-ray diagnosis and high voltage therapy may be seen in this year's exhibits of the General Electric X-Ray Corporation. From the modest requirements of average office practice up to the powerful equipment designed for the specialized x-ray department, the wide G. E. line offers a selection exactly

sued to your individual needs. The G-E Inductotherm and other physical therapy apparatus will also be shown. Booths 155, 156, 157 and 158.

## BOOKS

### New "Practitioners Library"

An outstanding feature of the D. Appleton-Century exhibit, Booth 52, will be their "Practitioners Library of Medicine and Surgery" now nearing completion under editorial supervision of Dr. George Blumer. There will also be on view the first of three volumes of their new "Postgraduate Surgery," Sir William Osler and Thomas McGraw's "Principles and Practice of Medicine" and the new edition of Milton J. Rosenau's "Preventive Medicine and Hygiene."

### Blakiston's Book Display

Space 109 will be occupied by P. Blakiston's Son & Co., Inc., who will exhibit the following books: East's "Medical Aspects of Crime," Halliburton & McDowall's "Physiology," Lawrence's "Diabetic Life," Osmond's "Laboratory Diagnosis," Piney & Wyard's "Atlas of Blood Diseases," Strecker & Ebaugh's "Clinical Psychiatry," Whitby & Britton's "Disorders of the Blood," Winton & Bryliss' "Physiology."

### "Cyclopedia" on Display

Convention visitors are cordially invited to stop at Booth 222 and examine the interesting new books which are being shown for the first time by I. A. Davis Company. The Cyclopedia of Medicine and Surgery, in twelve large volumes will be an outstanding feature of the exhibit.

### Lea & Febiger Medical Works

Lea & Febiger will exhibit some important new books and new editions at Booth 116. The new titles include Graham Singer Ballou's "Diseases of the Chest," Berglund & Medes on the Kidney, Hawes & Stone on Tuberculosis, and DeRivas' "Parasitology." New editions include Joslin's "Diabetes," Jelliffe & White's "Nervous Diseases," Boyd's "Pathology of Internal Diseases" and Stimson's "Contagious Diseases."

### To Feature Unusual Books

You can see these new books and new editions at the J. B. Lippincott Company's exhibit, Booths 79 and 80. Pfander & Schlossmann's "Diseases of Children," Pehani & Amreich's "Operative Gynecology," Kirschner & Ravdin's "Operative Surgery," McBride's "Disability Evaluation," Barborak's "Treatment by Diet," Sr. Gabriel's "Through the Patient's Eyes," Barker's "Treatment of the Commoner Diseases," Lisendath & Rolnick's "Urology," Anspach's "Gynecology," and the International Clinics' and "Annals of Surgery."

### "Textbook of Obstetrics"

The Macmillan Company will have on display at their booth, No. 96 new and outstanding books in many branches of medicine and surgery. One important work to be shown is Irving's "Textbook of Obstetrics," just published. Their representatives will be glad to give you information concerning this or any other of their books in which you may be interested. Proofs of several books now being printed will also be shown upon request.

## To Show Newer Publications

In Booth No. 7, the C. V. Mosby Company will feature their new publications released within the past year. Among the items to be shown are Taussig's "Abortion," Bray's "Synopsis of Clinical Laboratory Methods," Hunsel's "Allergy of the Nose and Paranasal Sinuses" and Sadler's "Theory and Practice of Psychiatry."



### From the Oxford Press

Visitors are invited to visit Booth 118 to review recent medical publications of the Oxford University Press. Among those to be shown are "Diagnosis and Treatment of the Heart," by Dr. Henry A. Christian, "Diagnosis and Treatment of Diseases of the Peripheral Arteries," by Dr. S. S. Samuels, and the Oxford "Loose Leaf Medicine."

### Shown for First Time

The union of the old house of William Wood and Company with the young house of Williams & Wilkins brings an excellent combined exhibit to Booth 86. Books shown for the first time include Beck's "Obstetrical Practice," Grollman's "The Adrenals," Himes' "Medical History of Contraception," Harrison's "Roentgenology," and Henry's "Psychopathology."



### A New "Parenteral Therapy"

Dutton and Lake's "Parenteral Therapy" covering general technic, hundreds of diseases, and over 700 drugs with which parenteral medication is concerned, may be inspected at Booth 80. Other new books to be shown by Charles C. Thomas include Landsteiner's "The Specificity of Serological Reactions," E. P. Sloan's "The Thyroid Surgery," Syndromes, Treatment, Percy Brown's "American Martyrs to Science Through the Roentgen Rays," and Kanner's "Child Psychiatry."

### Annals of Medical History

Paul B. Hoeber, Inc., Medical Department of Harper and Brothers, will display their entire line in Booth 83. Current numbers of the Annals of Medical History will be shown, together with copies of back numbers since 1917. Among recent monographs to be displayed are Riesman's "Story of Medicine in the Middle Ages," Warhass's "The Doctor and the Public Weir," "Diseases of the Liver, Gall Ducts & Pancreas," and Jacoby's "Physician, Pastor and Patient."

### "Surgery, Gynecology and Obstetrics"

A cordial invitation to visit Booth 180 is extended by the Surgical Publishing Company. Here you can inspect the "International Abstract of Surgery," a review and index of the world's current surgical literature, published as a part of "Surgery, Gynecology and Obstetrics." Also to be displayed is "The Joy of Living," an autobiography by the late Dr. Franklin H. Martin.



## ★ LIST OF EXHIBITORS

FIRM NAME	aisle	SPACE No	FIRM NAME	aisle	SPACE No
Cash Inc J & J South Norwalk Conn	I	246	Davis Co F A, Philadelphia	I	227
Castle Co Wilmet Rochester N Y	E	102 & 129	Day's Ideal Baby Shoe Co Mrs Danvers, Mass	H	219
Cayo Dr E P, San Antonio	H	218	De Forest Labs, Lee, Los Angeles	J	28
Chappel Bros Labs Rockford Ill	C	39	DePuy Mfg Co, Warsaw Ind	D	84
Chicago Dietetic Supply House Chicago	B	198	DeVilbiss Co, The, Toledo	E	113 & 114
Chicago Medical Book Co Chicago	F	23	Dietograph Prods Co Inc New York	G	165
Church & Dwight Co New York	B	137	Drug Products Co, Inc, Long Island City	H	200
Ciba Co Inc New York	C	28	Dry Milk Co, Inc, The New York	I	233 & 234
Ciklold Co The Marshalltown Ia	J	67	Dubin Labs Inc, H E New York	C	61
Cincinnati Scientific Co Cincinnati	E	256	Duke Laboratories, Inc, Long Island City	E	117
Clapp Inc Harold H Rochester N Y	B	108	DuPont Film Mfg Corp New York	G	168
Collins Inc Warren E Boston	F	35	Earnshaw Knitting Co Newton Mass	G	179-183
Coop Med Adv Bur	H	132	Eastman Kodak Co Rochester, N Y	G	217
Corn Products Refining Co New York	H	221	Electro Surg Instr Co, Rochester, N Y	H	218
Crescent Surg Sales Co New York	C	199	Electro Therapy Prods Corp Los Angeles	I	219
Cutter Laboratories Berkeley Calif	I	46	Emerson J H Cambridge Mass	H	126
Davis Rose & Co Boston	D	227-228	Enochs Mfg Co Indianapolis	E	127
Davis & Geck Inc Brooklyn	D	87	Fischer & Co Inc, H G, Chicago	C	49



## DIAGNOSTIC APPARATUS

## For Showing Body Cavity Secrets

Among the interesting instruments made for throwing light into hidden cavities of the body by the American Cystoscope Makers, Inc. are the Wrapper Cystoscope, the Cutler Thoracoscope, the Ruddock Peritoneoscope and many others. These will be explained and demonstrated in booth 230 by competent representatives. Many of the instruments are of new development.



## Blood Pressure Specialists

Attendants at the booth of W. A. Baum Co. will be glad to give to visiting physicians whatever knowledge the company has accumulated out of its twenty years experience in the manufacturing of mercury-gravity sphygmomanometers. The newest cast duralumin Baummanometer will be shown and a copy of the U. S. Bureau of Standards booklet given free to visitors. Booth 136.



## Blood Chemistry Units

In booth 81 will be shown LaMotte Blood Chemistry Units for the physician. They will be in charge of chemists who can explain their simple operation in connection with blood and urine analysis. The improved Kline Slide Test for Syphilis will also be explained. Other standard diagnostic units will be included.

## Bausch &amp; Lomb Instruments

Scientific instruments for the medical profession and medical students will feature the exhibit of Bausch & Lomb Optical Company in Booth 62. These instruments will include the Model HA Physician's and Medical Student's Microscope, hemacytometers, colorimeters, clinical microtomes, hemoglobinometers, centrifuges, and accessory equipment for laboratory use.



## New Instruments for Old

In Booth 53 the Cameron Surgical Specialty Company will show the latest developments in electrically lighted diagnostic instruments. New diagnostic sets for Boston bags will be featured in a wide variety of prices. Also included will be the Tele-Vaginalite (Micro Colposcope) and the Cameron Cauterodyne. A representative will be glad to explain how it is possible to exchange present Cameron instruments for the more improved models.

## For Cardiac Diagnosis

Instruments to be found in the exhibition of The Cambridge Instrument Company, Inc. are the Handle Portable Electrocardiograph, the All-Electric Mobile Electrocardiograph, the Mobile Electrocardiograph-stethograph, the Stethograph Attachment, the Portable Stethograph and the Amplifying Stethoscope. A new development is their heart sound recording equipment. Booth 159.

## New Jones Motor-Basal



You may have your own metabolic rate taken by the Middlewest Instrument Company booth 178. See the demonstration of the new All-Electric Jones Motor-Basal, both hospital and portable models with inkless recording electric clock, waterless spirometer and direct reading technique.

## A \$550 Electrocardiograf

The operation and construction of the new low priced electrocardiograf called the Cardiette will be explained by the Sanborn Company in Booth 105. Technicians will also demonstrate the larger hospital size Electric-Portocardiograf and the latest Sanborn Motor Graphic Metabolism Tester Model E-I-S which features a spring-balanced oxygen bell and Stylograf chart records.

## To Show Optical Instruments

At the Spencer Lens Company Booth No. 49 there will be a complete line of scientific optical instruments of special interest to the medical group. It will include binocular microscopes featuring the convenient converging in-oculars, photomicrographic cameras with side focussing telescope microscopes and new microscope lamps for research work.



## New Instruments Featured

Recent developments in hand ophthalmoscopes and otoscopes will be shown at Booth 232. The Welch Allyn Company has added a number of features to these instruments some of which have never before been shown. Not only will their complete line of eye, ear, nose and throat instruments be on display but new rectal instruments, urethroscopes, vaginoscopes and cystoscopes.

## FOOD PRODUCTS

## For Pulping Baby's Food

Doctors will be interested in the new Junior Size Foley Food Mill which strains vegetables and fruits fine enough for infants quickly, easily and safely. It will be on exhibit in Booth 65 where representatives of the Foley Manufacturing Company will be pleased to explain its many uses not only for infants but for non-roughage diets.

## For Restricted Diets



Cellu Juice-Pak Fruit, consisting only of choice tree ripened fruit and added fruit juice of its own kind will be shown at Booth 198. The product is especially adaptable to quantitative diets of restricted carbohydrate value. The food values on the labels simplify calculations. Other special foods will be shown.

## Samples of Borchardt Products

At the Borchardt Malt Extract Company exhibit Booth 98 samples of the following products will be supplied upon request: Borchardt Malt Soup, Extract Malt with Cod Liver Oil, Malos (Malt Sugar) and Malt Extract Plain. Special information on recent bio-assays of Vitamins A, B and D will also be available.

## Gold Medal Foods on Display

General Mills, Inc. will display Limbo (wheat embryo) and also these nationally known Gold Medal Foods: Softasilk, Cake Flour, Bisquick, Wheaties and Kitchen-tested Flour Literature explaining the nutritive value of these wheat products together with suggestions for their use will be given free at Booth 236.

## Motion Picture Will Be Shown

A feature of the American Can Company exhibit will be a motion picture depicting the formation of the hermetic double seam on the tin container. Also at their booths 252 and 253 information will be available concerning those aspects of commercially canned foods which are of greatest interest to the medical profession. Literature on canned foods designed specifically for the physician's use will be on display.

## Sanka Coffee to Be Served

General Foods invite you to visit Booth 207 and drink a cup of Sanka Coffee. Then you'll know for yourself how rich it is in flavor and aroma, even though it's practically free from caffeine. Also on display at their booth you'll find D-7-erz, an attractive sugar-free gelatin dessert for patients on a low carbohydrate diet.



## Between-Meal Feeding

The Krim-Ko Company cordially invites visitors to call at Booth 197 for information about between-meal feeding satisfying children's candy hunger in a natural and nutritional way and getting more calcium and phosphorus into the diets of children who balk at drinking milk.

## Have a Cup of Coffee

Doctors are invited to visit the Kellogg Booth, No. 17, for a cup of refreshing Kaffee Hag Coffee. Bottle exhibits showing the stages in decaffeinating coffee are to be displayed and explanation will be given. Reports covering research on effects of caffeine and also on brew will be furnished upon request.



## Register for Nutritional Charts

The H. J. Heinz Company invites you to visit Booth 214 and see their display of tomato juice, breakfast cereals and strained

## LIST OF EXHIBITORS ★

FIRM NAME	aisle	SPACE No	FIRM NAME	aisle	SPACE No
Foley Mfg. Co. Inc. Minneapolis	C	63	Hoebel Inc. Paul B. New York	D	83
Foregger Co. Inc. The New York	H	208	Hoffmann-La Roche Inc. Nutley, N. J.	F	151
Form Publishing Co. New York	G	173	Hospital Liquids Inc. Chicago	E	103
Fougere & Co. E. New York	G	169	Hugeira	E	128
Gastro Photolabs New York	H	213	Hynson Westcott & Dunning Baltimore	D	94 and 95
General Electric Co. Cleveland	D	100 101	Illinois Surg. Supply Co. Chicago	D	75
General Electric & Ray Corp. Chicago	F	155-156-157-158	Irradiated Evap. Milk Inst. Chicago	C	45
General Foods Corp. New York	H	207	Ise Co. The W. E. Kansas City, Mo.	H	209
General Mills Inc. Minneapolis	I	236	Johnson & Johnson New Brunswick, N. J.	F	145
Gerber Products Co. Fremont Mich.	F	135	Kelley Koett Mfg. Co. Covington Ky.	C	40-41-42 and 43
Goetze Niemer Co. Kansas City Mo.	G	164	Kellogg Co. Battle Creek Mich.	B	17
Gomco Surg. Mfg. Corp. Buffalo	H	211	Keystone View Co. Meadville Pa.	J	257
Hamilton Mfg. Co. Two Rivers Wis.	C	63 and 64	Krim-Ko Co. Johnstown N. Y.	H	204 & 205
Hanovia Chem. & Mfg. Co. Newark	C	54	Lakeside Labs. Milwaukee	H	197
Hawman Pineapple Co. San Francisco	J	264	LaMotte Chemical Prod. Co. Baltimore	A	4
Headbrink Co. The Minneapolis	H	203	Lar-en Co. The Green Bay Wis.	D	81
Heinz Co. H. J. Pittsburgh	H	214	Lea & Febiger Philadelphia	E	220
High Tension Corp. New York	F	131 & 162			116





foods especially prepared for infant and convalescent feeding. Also they suggest that you register for the revised edition of their Nutritional Charts. It contains, along with vitamin mineral and food composition sections new ones on daily requirements and food allergy.

### Milk Irradiation

The Irradiated Evaporated Milk Institute in Booth 15 will show a novel display symbolizing in light color metal and photography the enrichment of evaporated milk with vitamin D by means of irradiation (Steenbock process). Literature will be available on infant feeding on the nutritive value and uses of the enriched milk and on the method and value of irradiation.

### See the Mechanical Cow

At the Nestle's Milk Products Inc Booth No 27 visitors will see the Nestle mechanical cow. She is a talented little lady who will blink her eyelids, wag her head, flick her tail and moo softly. Her markings represent the world-wide distribution of Nestle Products. Literature and samples of Lactogen Hylic and Nestle's Food will be available to all interested physicians.

### Pabulum

Mead Johnson & Company will show in Booths 36 and 37 the result of recent studies on the digestion and nutritive value of Pabulum. The physical characteristics of the product will be illustrated by photomicrographs and microprojector equipment and in-vitro enzymatic digestions will be performed showing how various starches digest when cooked by different methods. Charts will also visualize some of the nutritive values of Pabulum.



### Infant Feeding

Fitting the food to the baby, the correct approach to bottle feeding and other principles underlying the Mellin's Food method of milk modification will be discussed by well qualified representatives at Booth 91. Physicians are cordially invited to call.

### A Completely Modified Milk

The M & R Dietetic Laboratories will have in their display Similac, a completely modified milk for infants deprived of breast feeding. Representatives will be on hand to explain the value of the low curd tension of Similac as it applies to infant feeding and also the special cases in which it has proved beneficial. They will also explain the value of Spiruline as a mineral supplement. Booth 97.



### Palatable Products for Baby

Stokely Brothers and Company will exhibit their Strained Foods for babies in Booth 182. Their nine varieties include cereal, vegetable soup, spinach, carrots, peas, green beans, tomatoes, prunes and apricots—all packed in golden enamel lined

cans, and seasoned with salt or sugar under laboratory control—and all distinctly palatable. Visitors are invited to call and register.

### SMA and Smaco Products

The SMA Corporation will offer for your attention at Booth 57 the story of the significant resemblances of SMA to breast milk. The display will also include Smaco Carotene crystals, liquid, and capsules for providing concentrated vitamin A activity in the same form in which it occurs in the normal human diet.



### Learn About Vegex

The Vegex exhibit will show a study in tests for Sheiman B<sub>1</sub> units and B<sub>2</sub> (G) units, International B<sub>1</sub> units with B complex free test comparisons. Photostats from medical literature mentioning Vegex will be given. As usual the exhibit will demonstrate the palatability of Vegex with butter on bread, in broth, milk and tomato juice. Booth 71.

### To Serve Vitamin D Milk

The Vitex Laboratories will again serve Vitex Vitamin D Milk at Booths 240 and 241—all you can drink. Every quart of Vitex Vitamin D Milk contains 400 U.S.P. units of the cod liver oil Vitamin D.



### MISCELLANEOUS

#### Public Health and Laundering

The exhibit in Booth 215 will illustrate how the science of laundering fits into the public health program. It will show what the American Institute of Laundering has determined by accurate laboratory testing about the relative efficiency of home and commercial laundering processes. Fully informed attendants will be present to explain the exhibit and descriptive booklets will be available.

#### Better-Sight Desk

A visit to Booth 116 will show what a progressive school seat manufacturer has accomplished to protect the health of school children. You will see here what the American Seating Company has done to develop a new type of school seat that makes correct posture natural and comfortable and at the same time relieves children of the eyestrain usually associated with old type of school seating.



#### Aznove's Employment Service

An experienced representative will be on hand at Aznove's National Physicians Exchange Booth No 107. She will be glad to assist all employing officials interested in adding to, or making a change in their present personnel, whether it be a physician, nurse, dietitian, technician or other.

medical assistant. This service is free to employers. Also the representative will be glad to discuss the Aznove service with those seeking an appointment or desiring to make a change.

### Motion Picture Equipment

In Booth 194 Bell & Howell will display and demonstrate various types and sizes of Ilmo movie cameras, projectors and accessories showing models for every purse and purpose. Included will be the new Ilmo Straight 8 and Double 8 Cameras featuring the world's smallest practical movie cameras which use low cost 8 mm film.



### The Doctor and the Law

How medical liability insurance has kept pace with the science of medicine may be learned at Booth 25, where the Medical Protective Company, which specializes in this field, will be represented. Complete sets of the quarterly booklet "The Doctor and the Law," prepared by the Company's Law Department, will be available for examination. This publication represents an exclusive prophylactic and protective service by this Company to its clients.

### Medical Personnel

In Booth 3 M Burneice Larson will offer the facilities of the Medical Bureau which deals with problems of medical and nursing personnel. The records of physicians who have specialized men and women interested in assistantships, accredited graduate nurses and laboratory technicians and dietitians will be available to those interested in the completion or reorganization of their staffs.

### For Treatment of Burns

Visitors interested in treatment of burns with Tannic Acid in jelly or paste form should call at Booth No 67 where the Impervious Form of Cilkloid, Surgical Dressing will be exhibited as a non-adherent dressing. The Impervious Form will also be shown for non-adherent nasal packs, as well as for protective and occlusive coverings. The Perforated 'Cilkloid' will be shown as a direct dressing.



### Complete Orthoptic Equipment

The Keystone View Company will present complete orthoptic equipment in Booth 237. The exhibit will include anatomical stereographs, home and office training material, the Malingering Tests and Visual Safety Tests for highways and industries and the Ready to Read Tests for schools. New this year is the Tel-Eye-trainer with Tel-Rotor control which will be of interest to all leaders in the field of orthoptic practice.

### Inexpensive Case History Method

A system that shows at a glance the case you want how many calls you made and when the patient's history, the developments, diagnosis and treatments as well as the financial status of each case, will be shown in Booth 50 by the Medi-



## ★ LIST OF EXHIBITORS

FIRM NAME	aisle	SPACE No	FIRM NAME	aisle	SPACE No
Lederle Labs New York	C	59 and 60	Medical Bureau The, Chicago	A	50
Lepel High Frequency Labs New York	D	69 and 70	Medical Case History Bur New York	C	25
Liebel Flarsheim Co Cincinnati	I	223 & 224	Medical Protective Co Wheaton Ill	B	91
Lilly and Co Eli Indianapolis	A	9-10 & 11	Mellin's Food Co Boston	D	160 & 161
Linde Air Products Co New York	I	242-243-244-245	Mennen Co The Newark	F	31 and 37
Lippincott Co J B Philadelphia	D	79 & 80	Merck & Co Inc Rahway N J	B	8
Lippincott Co Alliance Ohio	I	225 & 226	Merrell Co The Wm S Cincinnati	D	178
McCasky Electrical Corp Chicago	C	50	Middlewest Instr Co Chicago	G	7
McIntosh Appliance Co Toledo	H	216-217	Mosby Co The C V St Louis	E	111-112
McKesson Electrical Labs Columbus Ohio	D	97	Mueller & Co V Chicago	I	242-243-244-245
Macblett Labs Inc Springdale Conn	G	191	National Carbon Co Cleveland	B	26
Macmillan Co The New York	D	96	National Drug Co Philadelphia	J	27
Mallinckrodt Chemical Wks St Louis	B	34	Nestle's Milk Products New York	B	255
Malthre Chemical Co Newark	E	104	O Leary Inc Lydia New York	J	118
Maltine Co The New York	A	12	Oxford University Press New York	F	138-139-140
Marcelle Laboratories Chicago	D	88	Parke Davis & Co Detroit	D	207
Marvel Clarke Co Chicago	A	3A	Patterson Screen Co Towanda Pa	H	
Mead John on & Co Evansville Ind	A B & F	5 6 36 37 & 134	Pelton & Crane Co Detroit	H	

cal Case History Bureau All of the history forms will be displayed as they are actually kept in their cabinets

### Prescription Footwear

A great variety of Walk-Over Prescription footwear will be shown by the George E. Keith Company. In the display will be samples of the firm's educational material, such as booklets on shoes, lasts, fitting and Muni Spring Arch folders on foot exercises for distribution to patients and enlarged charts for office use. These will be sent free to doctors registering in Booth 149.



### One-Writing System

At Booths 225 and 226 the McCaskey Register Company will display their One-Writing System for Physicians which includes visibility for individual active patients' records. This method protects income and provides instantly available records, professional and financial.

### Woven Names and Labels

The well known Cash Names and Labels for marking hospital linen and clothing uniforms of doctors, nurses and orderlies, will be displayed by J & J Cash, Inc. in Booth 246. Visitors will be given sample tubes of Cash's NO-50 Cement for attaching these names and labels without sewing.



### Philip Morris Cigarettes

Philip Morris & Co. Ltd. Inc. will demonstrate the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent are less irritating than ordinary cigarettes in which glycerine is employed. Booth 147.

### "Evenflo" Baby Nursing Unit

The Pyramid Rubber Company will again exhibit their "Evenflo" Baby Nursing Unit. With this aid there is no vacuum or back pressure to nurse against. Baby feeds in comfort and contentment. Easier for mother, too. Sanitarily protects formula and nipple between feedings. Helps to assure easy, peaceful, wholesome feeding. See demonstration in Booth 238.



### To Demonstrate Supports

Physicians and their wives will find the exhibit of Spencer Surgical and Style garments interesting. Booth 51. Nurses and representatives will demonstrate the principle of all Spencer Supports, which places weight of abdominal uplift on the pelvic girdle—not on spine, or above lumbar region. They will explain the process of individually designing each separate garment for such purposes as post-operative maternity and postpartum wear.

### Physicians Leather Goods

The Western Leather Manufacturing Company will display their entire line of physicians' leather goods in Booth 66. The exhibit will include bags, medicinal cases, vial cases and prescription pad covers. Their representative will be pleased

to discuss any personal, individual need involving leather goods of any description.

### Wright Arch Preserver Shoes

Of particular interest in the E. T. Wright & Company exhibit will be several special orthopedic lasts for men, developed and improved in collaboration with members of the profession. The special measurements and extra built-in features of support in these shoes with the authentic Wright Arch Preserver construction of their lasts supply the requirements for a of foot disorders and sub-



wide range normalities Booth 16

### OFFICE FURNITURE

#### Fine Wood Furniture

The W. D. Allison Company, manufacturers of physicians' fine wooden furniture for more than fifty years, will have on display three complete suites, as well as the popular Hynes rectal table. Visitors are urged to visit Booth 30 and see this equipment.



#### New Styles in Office Furniture

The Enochs Manufacturing Company of Indianapolis will display the latest creations in physicians' office equipment. They will have in attendance an expert on arrangement and decoration of modern medical offices. A visit to their Booth, No. 126 will prove interesting and worth while.



#### Tables for General Use

The Hamilton Manufacturing Company is to show in Booths 63 and 64 complete suites in their Moderne Nu-Classic Medical Furniture and standard Hometone Furniture. New tables will be featured which combine the examining table with a practical treatment feature. All doctors and especially all internes are cordially invited to visit this showing of modern medical furniture.

#### Feature Hydraulic Chair-Table

A hydraulic office treatment and operating chair-table, reasonably priced, will be featured by the Illinois Surgical Supply Company at Booth 75. The table may be quickly and easily adjusted to all desired positions including the true Trendelenburg. Arms are completely removable, and chair is permanently upholstered and finished in stainless porcelain and chromium. Many other items will be shown.



### PHARMACEUTICALS AND BIOLOGICALS

#### Pollen Enlarged 8 Billion Times

A most interesting feature to be seen at the Abbott Laboratories exhibit, Booths 89 and 90, is the display of enlarged pollen

granules. Each model, although 8 billion times larger than actual size, is a true reproduction of the granule as it appears under the microscope. Abbott Laboratories will also show a representative assortment of their large list of Council-accepted products. Included are Abbott's Aeridine, Metaphen, Neonol, D.R.L. Bismarsen, D.R.L. Neophrasphenamine, Abbott's Viosterol, Halyver Oil with Viosterol and others.



### Intravenous Solutions

The American Hospital Supply Corporation of Chicago and New York will exhibit Baxter's Intravenous Solutions in Vocoliters in Booth 171. Visitors are invited to call.

### Armour Exhibit

Armour and Company's exhibit will demonstrate the fact that organotherapeutic preparations unlike most other pharmaceuticals are made of highly perishable raw material which will lose its efficacy unless it is properly handled. Their booth No. 142 will depict the sources of glandular preparations, surgical ligatures, etc. in meat animals. Along with a vial of Pituitary Liquid for example will be shown the glands from which the substance is extracted. Competent men will be in attendance.

### Metrazol to Be Shown

At Booth 72 information will be available concerning possibilities of Metrazol as an antagonist to such drugs as the barbiturates, the opiates, avertin, ether and in asphyxia neonatorum. Also reports on Theocalcin in the treatment of congestive heart failure and angina pectoris and Diluclid for pain relief and cough. Other Billhuber-Knoll products to be featured are Lemigallol and Bromural.



### Ciba Specialties

Physicians are cordially invited to visit the Ciba booth No. 28 where they will find exhibits of such well known Ciba Specialties as Digifoline, Dial Nupercaine, Lipiodine and Vioform. Some interesting new uses for these products will be described by the Assistant Medical Director and representatives of the firm, who will be glad to discuss any questions.

### To Feature Cardiotonic

Urginin and Trichlorethylene will be displayed by the Calco Chemical Company in Booth 184, also the cardiotonic Urginin representing the combined water-insoluble quill glycosides (Scillonin A and Scillonin B) in approximately equal proportions and trichlorethylene-Calco in 1 cc frangible mesh covered ampules, for relief in facial neuralgias.



### Dubin Aminophyllin

In Booth 61 duly demonstrations of the easy solubility of Dubin Aminophyllin will be given by its originator. The drug is useful as a coronary vasodilator, myocardial stimulant and diuretic. Literature and samples will be available.

## LIST OF EXHIBITORS ★

FIRM NAME	AIISLE	SPACE NO	FIRM NAME	AIISLE	SPACE NO
Pet Milk Co, St Louis	A	13	Russell and Co Kansas City Mo	C	38
Petrolagar Laboratories, Chicago	A and I	8 247 248	S M A Corp Cleveland	C	57
		and Room A adjoining	Sanborn Co Cambridge Mass	E	105
Philip Morris & Co New York	F	147	Sandoz Chem Works New York	E	110
Philips Metalac Corp New York	H	196	Saunders Co W B Philadelphia	F	114 & 115
Philips Co Dr P, Orlando Fla	J	234	Scanlan Morris Co Madison Wis	F	153 & 154
Picker & Ray Corp New York	J	174-175 & 176	Schering Corp Bloomfield N J	D	74
Pilling & Son Co Philadelphia	E	106	Schiffelstein & Co New York	J	262
Prior Co, W F Hagerstown Md	E	117	Scientific Sugars Co Indianapolis	J	192
Prometheus Elec Corp New York	G	181	Searle & Co G D Chicago	B	29
Puritan Compressed Gas Corp Kansas City Mo	G	172	Selby Shoe Co Portsmouth Ohio	J	263
Pyramid Rubber Co Ravenna Ohio	J	238	Sharp & Dohme Philadelphia	A	1 and 2
Radium Chem Co New York	G	170	Siebrandt Mfg Co Kansas City Mo	H	206
Radium Emulsion Corp New York	A	14	Slar Mfg Co J Brooklyn	D	76 & 77
Radon Co Inc New York	G	170	Smith Co Upsher Minneapolis	C	56
Remington Typewriters		adj booth 105	Smith Kline & French Labs Philadelphia	F	144
Rose Mfg Co, E J Los Angeles	I	235	Snuggle Rug Co Goshen Ind	G	163
			Sorenson Co C M, Long Island City	F	150



### Dependable Digitalis Preparation

Visitors are invited to call at Booths 227 and 228 where they will find exhibited products of Davies Rose & Co. Ltd. One outstanding production of this firm's laboratory to be shown is Pil Digitalis (Davies Rose). The physiological dependability of these pills has won for them widespread recognition.

### Improved Tablet Making

The Drug Products Co. Inc. (Booth 200) will demonstrate the advantages of their Pulvoids by reduction to powder under thumb pressure. They will show how the rapid disintegration results in prompt assimilation of medicaments.

### Recently Developed Uses of Lipiodol

Physicians who visit Booth 169, of E. Fougere & Co. will be offered an excellent opportunity to discuss the recently developed uses both diagnostic and therapeutic in which Lipiodol Lafay has been employed. Digitaline Nativelle will also be displayed. Information will be available concerning the research recently completed surrounding this stable Glucoside of Digitalis purpurea.

### Subcutaneous Liver Extract

Their Subcutaneous Liver Extract is to be featured by Chappel Laboratories in Booth 39. This preparation lends itself readily to office and hospital routine where a trained assistant can administer it with ease and safety. The product has been reported in current medical literature. Reprints and complimentary supplies will be available to physicians.



### Sodium Bicarbonate U S P

Church & Dwight Co. Inc. who for 90 years have concentrated on producing pure sodium bicarbonate will exhibit in Booth 137. Here they will show those dependable old products that have stood the acid test of time since 1846—Arm & Hammer and Cow Brand Bicarbonate of Soda.



### Intravenous Products

The Cutter Laboratories in Booth 46 will exhibit their Council Accepted prepared and ready to use Dextrose and other solutions in Salfitask containers. Demonstrations will be held to show the proper technique for putting these flasks in operation and to demonstrate the ease and simplicity of their use to the physician. A complete line of Council Accepted Cutter biological products will also be included.

### "Medicines of Rare Quality"

A call at the Hoffmann-LaRoche Booth No. 151 may very well be an essential part of every visitor's itinerary. Anticipating unprecedented interest in their display this year, Roche assures that there will be in attendance the usual adequate staff of

representatives of the Medical, Scientific and Research Divisions to permit of uninterrupted personal discussion of 'Roche' 'Medicines of Rare Quality'.

### To Demonstrate Filtrair Method

The newer methods of administration of parenteral solutions will be featured by Hospital Liquids Inc. in Booth 103. Interesting demonstrations of the Filtrair method will be on display and an attractive booklet on parenteral administration reviewing all the literature to date will be available to physicians. Competent representatives will be in attendance, and they will be glad to discuss the many problems of parenteral therapy.

### All About Mercurochrome

Hynson Westcott & Dunning Inc. in Booths 94 and 95 will have an interesting display featuring Mercurochrome in its respective dosage forms including Mercurochrome Surgical Solution for prooperative skin disinfection. In addition numerous scientific diagnostic appliances and apparatus will be exhibited. Literature and samples will be available to doctors who are not already familiar with products exhibited or who wish a trial supply.

### Ampoule Preparations

Their Council Accepted Ampoule preparations particularly their ampoules of Dextrose (d. Glucose) 50%, Sodium Cacodylate and Calcium Chloride will be exhibited by Lakeside Laboratories, Inc. in Booth 1. Members of the research staff will be present to demonstrate the chemical, bacteriological and physiological methods used to insure the purity, sterility and safety.



### New Scarlet Fever Antitoxin

Lederle Laboratories will feature one of their new series of Globulin Modified Antitoxins, a 6000 therapeutic dose of Scarlet Fever Streptococcus Antitoxin contained in a vial of 3 1/2 cc—together with their latest contribution to Liver Therapy—the 1 cc Concentrated Solution Liver Extract Parenteral which contains active substance obtained from 100 grams of Liver (Booths 59 & 60). Staff representatives will be in attendance to answer technical questions.

### Convention Package to Be Mailed

Visitors are cordially invited to call at the booth of the Malthie Chemical Company No. 104. Questions will be answered fully about Calcereose, the original brand of calcium cresotite U S P. The firm will be glad to send a splendid convention package to all those who leave their name and address.

### Treatment of Syphilis

Reprint of a scientific report 'Standard Treatment Procedure in Early Syphilis,' will be available at the Merck Exhibit. A schedule of treatment based on the use of arsphenamine or neosalvarsan as the foundation of the recommended treatment will be given. Also Cebione (cevitamic acid Merck) pure crystalline vitamin C, will be shown in Booths 31 and 32.



### Cod Liver Oil Research

The Malthie Company will demonstrate in Booth 12, the various steps involved in the manufacture of Maltine with Cod Liver Oil and will show evidence that the vitamin A value of cod liver oil is enhanced two fold when administered as Maltine with Cod Liver Oil. Charts and illuminated photographs will show results of recent laboratory research on this subject.



### Biological Products

The National Drug Company will exhibit a complete line of antitoxins, curative serums, antigens and vaccines and will demonstrate the various steps used in the refinement and concentration of Antitoxins. They will demonstrate the Sabouraud method for determining the type of pneumococcus in pneumonia patients and the agglutination testing of Typhoid Vaccine. Particular attention will be directed to Hys Fever and Poison by Antigens. Booth 26.

### Puritan Maid Products

The Puritan Compressed Gas Corporation, pioneer medical gas manufacturers will exhibit in Booth 172. The firm manufactures the Puritan Maid brand of Nitrous Oxide, Ethylene Oxide, Carbon Dioxide and Carbon Dioxide-Oxygen Mixtures and are also distributors of leading makes of oxygen tents, nasal catheter outfits and anesthetic apparatus.



### Famous Painting to Be Shown

Owing to many requests from members of the medical profession, Petrolagar Laboratories Inc. will again exhibit the life like sculptural reproduction of the Doctor after the famous painting by Sir Luke Fildes, R.A. All physicians attending the meeting are cordially invited to view this renowned three dimensional work of art by Paulding and Ingels in the room provided for it. An unusually attractive pharmaceutical exhibit designed especially for the 1936 meeting will also be shown. Booths 8, 247, 248 and adjoining room.

### Many Squibb Products Shown

Whether their interest is in endocrinology, metabolic disorders, anesthesia, genito-urinary infections, allergy, nutrition or immunology, physicians attending the convention will find much of interest in the various Squibb Products useful in these various fields. A unique opportunity is afforded physicians to examine and discuss many of the recent research contributions which lend promise of marked clinical usefulness. Competent representatives will be in attendance at all times to answer inquiries. Booths 122, 123, 124 and 125.

### All About Insulin Therapy

Insulin therapy and the newer developments in the production of this important therapeutic agent will be one of the features of the exhibit of Frederick Stearns & Company, Booth 152. Another interesting new product which will be demonstrated at this exhibit will be Neo-Synephrin Hydrochloride, a vaso constrictor for the relief



(Continued on advertising page 83)

## ★ LIST OF EXHIBITORS

FIRM NAME	aisle	SPACE No
Spencer Corset Co. New Haven	C	51
Spencer Lens Co. Buffalo	C	49
Squibb & Sons E. R. New York	E	122 123 124 125
Standards A Ray Co. Chicago	I	249-250
Stearns & Co. Frederick, Detroit	I	152
Stokely Bros & Co. Indianapolis	F	182
Storz Instrument Co. St. Louis	F	148
Sun-Ray Co. Frankfurt Ind	F	166
Supt. of Exhibits	F	133
Surgical Mechanical Research Los Angeles	I	193
Surgical Publishing Co. Chicago	G	185
Taylor Instr. Cos. Rochester N. Y.	G	183
Thomas Charles C. Springfield Ill	D	85
Tower Co. Inc. The Seattle	H	201
Treatment Regulator Corp. Detroit	I	195
United Fruit Co. Boston	E	121
Vitamin Food Co. and Veget. Inc. New York	D	71

FIRM NAME	aisle	SPACE No
Vitex Labs Inc. Harrison N. J.	I	240 and 241
Waite & Bartlett A Ray Mfg. Co. Cleveland	G	174-175 & 176
Walk Over Shoe Co. Campello Mass	F	149
Wallace & Tiernan Prods. Belleville N. J.	J	237
Welch Allyn Co. Auburn N. Y.	I	66
Western Leather Mfg. Co. Chicago	C	237
Westinghouse A Ray Co. Long Island City	J	237 258 259 and 260
White Laboratories Inc. Newark	E	170
Wilmot Castle Co. Rochester N. Y.	E	102 & 179
Winthrop Chem. Co. New York	E	127
Wocher & Son Co. The Max Cincinnati	I	279
Wood & Co. Division Wm. Williams & Wilkins Co. Baltimore	D	86
Wright & Co. Inc. E. T. Rockland Mass	B	15
Wyeth & Bro. Inc. Jno. Philadelphia	B	143
Zimmer Mfg. Co. Warsaw, Ind	F	

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**THE JOURNAL OF THE  
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**SATURDAY, APRIL 11, 1936**

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**THE KANSAS CITY SESSION**

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In this issue of THE JOURNAL appears the usual advance information relative to the annual session of the American Medical Association, which is held this year in Kansas City, May 11-15. The physicians of the Kansas City area have for some years established an enviable reputation for efficiency in the management of medical sessions and for hospitality toward the stranger within their gates. The prospects for the Kansas City session indicate that this reputation will be enhanced and multiplied manifold by the results of the first session of the American Medical Association to be held in Kansas City. Public officials, the hospitals, the medical profession and the community generally are all contributing their utmost to insure the complete success of this occasion. The professions of both Kansas and Missouri are enthusiastically interested. A local committee on arrangements has been developed so completely that members of the local profession are intimately associated with every one of the activities of the convention week.

Last week the reports of the officers and trustees of the Association were made available in THE JOURNAL. A special feature was the publication in boldface type of summaries to each of the sections of the reports. These were planned so that physicians generally might be aware of the numerous problems in the field of legislation, social welfare, economics and medical science which form the concern of the official bodies of the Association. No doubt many of these problems will receive special consideration by the House of Delegates at the Kansas City session.

Attention is called to the opening general meeting, at which there will be not only the addresses of the officers of the Association but also announcements by the governors of Missouri and Kansas and by representatives of local medical organizations. The general clinical meetings, which have in the past few years attracted thousands of physicians, include on this occasion two notable representatives from abroad—Lord Horder and Afranio do Amaral—and clinicians chosen

to give authoritative reviews in medical progress in many fields of current interest. The section programs include other distinguished visitors from foreign countries.

The list of entertainments indicates the greatest number of alumni and fraternity dinners and luncheons officially scheduled for any annual session. Moreover, the entertainment committee has scheduled golf tournaments and skeet and trap shooting tournaments on an ample scale.

The programs of the scientific sessions which are here included and the detailed announcements of the Scientific Exhibit speak for themselves. Especially interesting, however, are the symposiums scheduled in the sections and the special exhibits on traffic accidents, fractures, diabetes and other special topics, developed under the control of the exhibit committee of the Association.

The arrangements for women include not only special sessions of women's medical organizations but also an extensive program for the Woman's Auxiliary.

The new auditorium which Kansas City has built for the holding of conventions is closely adjacent to the excellent hotels and provides under one roof accommodations for practically all the activities of the session. The pictures of the auditorium that accompany the special article are but a slight indication of its beauty, its comfort, and the other modern qualities which it provides. Kansas City is the key city of the Southwest. The session will therefore attract many physicians who are not regularly attendant on annual sessions of the Association held in the East, in the North or in the Far West. The climate of Kansas City in May is salubrious. Physicians who have made regular attendance on the annual sessions of the American Medical Association a duty and a high point in their medical lives have come to realize the great significance of these sessions in individual medical advancement.

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**RESEARCH ON THE GONOCOCCUS AND  
GONOCOCCIC INFECTIONS**

The report of a special committee appointed to investigate the present status of research on the gonococcus and gonococcic infections has been recently released.<sup>1</sup> The two years of study from 1933 to 1935 were aimed at (1) ascertaining the amount, quality and trend of investigation on the gonococcus and the diseases it causes, (2) analyzing and correlating information derived from publications and interviews in order to evaluate accomplishments and to discover promising lines of research, and (3) assisting in laying a basis for the solicitation of financial support commensurate with the biologic, medical, social and economic importance of the subject. Some indication at least of the present

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<sup>1</sup> Thomas, Ruth B. and Bayne Jones, Stanhope. Report of the Committee for Survey of Research on the Gonococcus and Gonococcal Infection. *Am J Syphonor & Ven Dis* (suppl) 20:9 (Jan) 1936.

state of knowledge concerning the gonococcus and gonococcic infections and of the problems that are engaging the attention of investigators in laboratories, clinics and private practice has been made. As part of its work a list of the persons in the United States who have been studying the gonococcus during the last few years has been recorded. This list is not yet complete and has therefore not been reproduced with the report. The individual names in the list number 180. Not all are doing fundamental or important work on the gonococcus and gonococcic infections, but a number of the studies have resulted in definite gains in knowledge. No estimate of the amount of money now being expended on these investigations could be attempted. The evidence, however, was that, with few exceptions, the available money is scattered in relatively ineffective small sums. There are few if any large appropriations of funds for the support of research on the gonococcus.

A review of the literature indicates that much confusion of thought on many phases of the problem still exists in spite of every effort to achieve lucidity and coherence. Much of the literature expresses results or conclusions founded on work that is poorly controlled. In this respect according to the report, the clinical studies rank on the whole below those carried out in the laboratory. Even though the available factors are more susceptible to control in laboratory studies than in those made on man, there is no apparent reason why the same quality of intelligence cannot be applied to the two fields. The writers of the report evidently felt that this is only exceptionally the case. They also concluded that, while the number of papers on this subject is voluminous, many of them are superfluous and merely serve to confuse the more important issues. Negative or inconclusive results are not so likely to be published as those which are considered positive, hence many workers who evaluate their results by exacting standards tend to publish their reports less frequently than those with a less well developed critical sense.

Some studies, especially those relating to methods of therapy, are financed by commercial establishments that may have an interest in the product on trial. Under these circumstances, completely objective evaluation of the results is unusually difficult.

Unsolved problems worthy of investigation exist in almost every section of the field. Two fundamental problems the solution of which would appear to lead to the greatest progress are (1) further clarification of the biochemical nature of the gonococcus and the products of its metabolism and (2) the production in animals of gonococcic infections similar to those found in human beings. These two fundamental problems have subdivisions each of which could well serve for the concentrated study of large groups. The answer to the first problem might enable a better understanding of the mechanism of the production and the chemical nature of toxins. It might also provide a rational

method of preparation of vaccines and antigens as well as the possible development of therapeutic methods not yet perceived. The second question is if anything more important in that it would allow certain features of the infection to be more clearly understood. Among the more important of these are the limits of the incubation period, the variations of virulence of different strains, the mechanism of invasion, the mechanism of pathogenicity, the variations of individual resistance, the factors of immunity, and the accurate evaluation of therapeutic and prophylactic measures.

Periodic reviews of the status of a problem or a group of problems helps to avoid a vast amount of unnecessary repetitions or uncritical work. All those interested in any of the research problems connected with the gonococcus should carefully familiarize themselves with this report.

#### POTENCY OF ANTIANEMIC PREPARATIONS

The establishing of comparative potency of preparations of liver and stomach used in the treatment of pernicious anemia is difficult. Recently, after extensive consideration, the Council on Pharmacy and Chemistry<sup>1</sup> developed standards that will permit direct comparison of the antianemic potency of such products, these standards are based on the reticulocyte production resulting from daily administration of the extract under test to patients in exacerbation. Because of the difficulty in applying these clinical tests, insufficient time has thus far elapsed to establish the potency of all the antianemic products in New and Nonofficial Remedies, it is expected that this will be accomplished in the near future.

The amount of liver employed in manufacturing a given amount of extract is of little importance compared to the potency per given weight or volume of the final extract. However, until the Council established its new standards the only method available to indicate potency was to state the amount of liver from which the product was derived, this, of course, led to wide divergence in many cases between the assumed and the actual antianemic effectiveness. This was particularly the case with products made by new methods (for instance, autolysis) which were claimed to enhance the potency. Contrary to such claims, products made by autolysis were found by Castle and Strauss<sup>2</sup> to be less active than the amount of liver from which they were derived. This led to controversy over the value of autolyzed liver preparations in the treatment of pernicious anemia.

Elsewhere in this issue is an article by Klumpp<sup>3</sup> reporting results that confirm the essential observations

1 Standardization and Labeling of Liver and Stomach Preparations for Use in the Treatment of Pernicious Anemia. Report of the Council on Pharmacy and Chemistry. J. A. M. A. 105:1269 (Oct. 19) 1935.

2 Castle W. B. and Strauss M. B. Effect of Autolysis on Potency of Liver in Treatment of Pernicious Anemia. J. A. M. A. 104:798 (March 9) 1935.

3 Klumpp T. G. The Treatment of Pernicious Anemia with Autolyzed Liver Concentrate. This issue p. 1245.



of Castle and Strauss and indicate the amounts of the autolyzed product necessary to initiate remission and to maintain a normal erythrocyte level in pernicious anemia. Klumpp concludes from his studies that an amount of the autolyzed preparation derived from a given amount of liver is more potent than the amount of liver extract made in the usual manner (without autolysis) derived from the same amount of liver. The evidence for this claim does not appear to be conclusive. Even granting the validity of Klumpp's conclusion, this does not mean that gram for gram of the final preparation the autolyzed preparation is more potent than the ordinary extract. The contrary is the case, as the process of making the autolyzed product is such that the material obtained from a given amount of liver weighs more than three times as much as the extract. The foregoing illustrates the confusion that is possible in estimating comparative antianemic potencies and emphasizes the necessity for standards such as the Council on Pharmacy and Chemistry has devised.

The activity of a given amount of the final product is the important consideration in the therapeutic use of an antianemic preparation, the amount of raw material used in its manufacture is a secondary consideration which concerns chiefly the efficiency of the process employed and thus in some cases the cost of the final material.

### *Current Comment*

#### VITAMIN C AND CHLOROPHYLL

Several years ago it was pointed out<sup>1</sup> that there is in general a parallelism between the distribution of vitamin C and that of chlorophyll and perhaps other plant pigments. The green portions of plants were especially excellent sources of cevitamic (ascorbic) acid. Recently<sup>2</sup> a further study of this relationship has been made. Guinea-pigs fed a basal scurvy-producing ration were given as a supplement either the green leaves, the colorless leaves or the roots of certain plants, including carrot, turnip, endive, lettuce, onion and beet. The effect of the various supplements on the body weight, the appearance of hemorrhages at the joints, loosening of teeth, hemoglobin and erythrocyte content of the blood, and the cevitamic acid content of certain organs at necropsy was determined. In addition, the cevitamic acid content of the supplements was determined chemically by titration with 2,6-dichlorophenol-indophenol. In every instance the vitamin C content of the chlorophyll-containing portion of the plant exceeded by as much as ten times that of the colorless portions or the roots. The biologic responses likewise agreed with these results. Animals receiving the chlorophyll-containing portions of the plants remained normal, whereas those fed the same amounts of the nonchloro-

phyll containing portions or roots developed typical symptoms of scurvy. There was a progressive decline of body weight, development of hemorrhages at the joints, loosening of the teeth and a marked lowering of the hemoglobin content and number of erythrocytes in the blood. Analyses of the vitamin C content of the tissues of the animals at necropsy yielded confirmatory information. The organs particularly the suprarenals, of the guinea-pigs fed the nonpigmented plant supplement showed a distinctly lower cevitamic acid content than did those of the animals receiving the chlorophyll-containing supplement.

#### THE NORMAL RANGE OF THE LEUKOCYTE COUNT

The variation in the peripheral blood leukocyte count has been widely recognized, especially since the study of Sabin and her collaborators<sup>1</sup>. That classic study, however, was published in 1925, and much of its force has been dissipated in the intervening time. The principal conclusions reached were that there is a characteristic rhythm of the total white blood cells with an interval of approximately an hour's duration, the total number of the cells varies in the proportion of 1 to 2, it is increased in the afternoon, regardless of whether or not food has been taken, and the entire increase is the result of an increase in the number of the neutrophilic leukocytes. Those conclusions were based on a study of six apparently normal individuals at frequent intervals over a considerable period. The necessity of renewing and extending this work is evidenced by the recent report of Juster<sup>2</sup>. In beginning an investigation of chronic rheumatic heart disease he found it necessary to redetermine the range of the leukocyte count in normal subjects under standard conditions. His group consisted of eleven persons between the ages of 17 and 50. Seven females and four males were studied for a period of from eleven to ninety-eight weeks. The observations were made weekly between 10:30 a. m. and noon. Unusual physical exertion was avoided, and there was no exposure of the hands to extreme heat or cold prior to the drawing of blood. The variations of the leukocyte count when charted as a curve were strikingly similar in nine of the eleven patients. The two others were so different that they were considered abnormal in spite of the fact that there was no physical basis to account for the abnormality. These individuals were, however, in a more emotional state than the others. Of the nine patients retained as normal, all the counts were below 11,000 in the upper limit and all, with one exception, above 4,000 in the lower limit. For practical purposes, therefore, the normal range of the leukocyte count is between 4,000 and 9,000, a ratio of 1 to 2 and similar to that found by Sabin and others. The curves did not show any individual pattern but appeared to fall within two groups. The first group included seven patients, and the second group of two patients did not have as wide

<sup>1</sup> Bessey, O. A. and King, C. G. The Distribution of Vitamin C in Plant and Animal Tissues and Its Determination. *J. Biol. Chem.* **103**: 687 (Dec.) 1933.

<sup>2</sup> Randon, L., Giroud, A. and Leblond, C. P. Recherches biologiques et biochimiques sur la teneur en acide ascorbique des tissus chlorophylliens et achlorophylliens. *Bull. Soc. chim. biol.* **17**: 1649 (Dec.) 1935.

<sup>1</sup> Sabin, Florence R., Cunningham, R. S., Doan, C. A. and Kindwall, C. A. The Normal Rhythm of the White Blood Cells. *Bull. Johns Hopkins Hosp.* **37**: 14 (July) 1925.

<sup>2</sup> Juster, I. R. The Normal Range of the Leukocyte Count Determined Weekly Over an Extended Period. *J. Lab. & Clin. Med.* **21**: 376 (Jan.) 1936.



a range of variation as those in the first group. Sex, season and age within the limits of the group studied appeared to have no influence on the leukocyte count. The variations illustrated by this study offer nothing new or surprising, but they serve to confirm and emphasize the facts of variation previously known.

## Association News

### ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

*Thirty Second Annual Meeting held in Chicago Feb. 17 and 18 1936 (Continued from page 1207)*

DR. REGINALD FITZ, Boston, in the Chair

### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 18—MORNING

What is the Social Objective of the Young Physician

DR. NATHAN B. VAN ETTEN, New York. This article appeared in full in *THE JOURNAL*, March 7, page 772.

### Some Observations on the Social Background of Medical Practice in Great Britain

RICHARD E. SCAMMON, PH.D., Minneapolis. The information presented here is based on the experience of a number of years, of which a part of each has been spent in Britain in an attempt to study the laws governing English practice. I view the English scene through American eyes, but it should be remembered that while many years' association with physicians has led me to take a sympathetic interest in their problems, I am a layman.

The various forms of medical practice existing side by side, recognized and unrecognized in Britain may be listed as follows:

1 The Highlands and the Isles service is limited to the Scottish Highlands and to the string of islands along the northwest coast. It is a purely social service. It appears to be excellently administered and attracts a high type of medical graduate. These fine and sturdy people, even with the rigid practice of Scots' thrift, do not find it easy to exist. The conditions in this area strike me as resembling those in certain parts of Alaska which I have visited where any government agency dealing with medical care came to the aid of the more or less marooned population in case of an emergency.

2 The second form of free medical service is that offered by the Poor Law Medical Staff of recognized paupers. These Poor Law medical officers are estimated to have the care of something like 300,000 sick persons.

3 There still remains in some of the remote valleys of Wales a small amount of private contract form of practice, which has grown up in the isolated mining communities, quite independent of regular medical practice.

4 Insurance or panel medicine requires the full time of the practitioner. This form I judge is relatively limited and is found mainly in the "distressed areas" and the more poverty stricken portions of the great cities.

5 Panel practice employs a part of the time of the practitioner who also conducts a private practice. It is exceedingly hard to differentiate between these last two groups. In fact, physicians seem to change from one to the other under the influence of a variety of circumstances. It is generally estimated that about two fifths of the registered physicians are engaged to some extent in panel practice. Panel practice is limited to employed persons engaged in manual labor or receiving incomes of less than £250 annually. In all perhaps two fifths of the British population are entitled to insurance through the panel system although, as will be pointed out later, I think a considerably smaller proportion make use of it. Any physician who is on the rolls of the General Medical Council may apply for a panel. He is limited under ordinary circumstances to a maximal number of 2,500 insured patients and generally

has less than a thousand. A panel physician is not required to perform all types of medical service. There is a small list of relatively minor surgical procedures which fall within his duties. But beyond this he may charge his panel patient for special services. In addition to other duties, the practitioner holding a panel is required to order medical appliances, drugs and the like, and the value and extent of these orders are adjudicated by the Panel Committee, which is made up of physicians. The panel physician must also undertake the task of certifying for sickness and disability benefits of patients under his care. The makeup of the several administrative boards under which he must work is extremely complex, including regional medical officers under the employ of the Ministry of Public Health, an advisory body which is medical in its personnel, and the approved society to which the patient must belong. The cost of the service is split about two fifths to the patient, two fifths to the employer and one fifth to the government. It is also somewhat difficult to estimate the income that the physician receives from his panel work. He is allowed 9 shillings or between \$2.25 and \$2.50, a year per person on his panel. This would work out in the case of the average physicians who engages in panel practice to about \$2,200 (without attempting to equate this sum into American purchasing power). It is the opinion of a number of persons, however, that the median earnings are considerably higher.

6 The sixth type of medical practice is one exactly the same as our own, in which the physician carries out the functions of his profession in the usual manner, taking private patients. Data collected by the National Health Insurance Commission over a decade ago indicates that the average income of a fairly successful practitioner, not a specialist, varied from about £1,200 to £1,400 and that his net income was perhaps in the neighborhood of £800.

7 The seventh form of medical care is that furnished by the great privately endowed hospitals, as distinct from those provided for the pauper sick. Most of the service here is purely charity work, given by men either engaged in purely private practice or in part panel and part private work. The great private hospitals of Britain seem to be encountering many difficulties in their fiscal operation. All sorts of devices have been used to augment this income.

8 The eighth and final form of recognized medical care is concerned primarily with public health and is carried out through the agency of medical officers of public health. The necessity of an adequate sanitary service is obvious.

These categories represent some of the legitimate forms of medical care. One may also list those that fall without the pale of accepted practice.

1 Irregular practitioners seem to be rather scarce in Great Britain. While a few osteopaths, chiropractors and unregistered physicians may carry out their activities, they are not obvious.

2 Druggists are said to prescribe and diagnose over the counter.

3 The sale of "patent" or proprietary medicines seems to me to be relatively small.

4 On the other hand the wide exploitation and advertisement of so-called health or tonic foods indicates a large consumption of this pseudomedical commodity.

5 There is another form of practice almost unknown to us at the present time but, I think, very prevalent in Britain. This is folk medicine. Medical traditions and remedies, generally worthless, but handed down from generation to generation, seem in very common use among a large mass of people. Practically every cook book includes a host of so-called remedies, often for maladies that we would think required the expert physician's care.

One gains the impression that the personnel of the service for public health in Great Britain is excellent. In fact, this service which has been built up over many years, has proved itself so efficient that public opinion is behind it and dismissals which in theory could be made at any time occur only in cases of gross inefficiency or misconduct. Since both the central government and the minor administrative units have built up a modest but sufficient annuity system, the service attracts and holds able men.

The rulings of the General Medical Council may be regarded as the basic code of the practice of medicine in the United Kingdom. Added to this are the regulations of the British

Medical Association, which is a limited liability company not organized for profit and which lays down a still stricter code. There is a third and even stricter code maintained by the Royal College of Physicians. While a licentiate may apparently own an interest in a private hospital, this seems forbidden to members and to fellows. Likewise fellows may not enter into partnerships, may not sue for fees, may not attempt to sell their practices, and are forbidden to engage in trade.

Naturally this complex situation did not arise without a long and complicated history. Although it may seem after the passage of 400 years that the transition from the medieval to the modern system was abrupt and dramatic, the records hardly bear out this concept. A century ago the medical situation in Great Britain had become so antiquated and complicated that change seemed imperative. Health, it appears, had much improved, as had the quality of medical practice, but the conditions governing the health professions were chaotic. There were some eighteen licensing bodies with variable powers and areas of authority, some of them overlapping. The laws governing medical practice represented an accretion of some two centuries and were often in conflict. Medical teaching was at a low ebb at the great traditional universities. There were at least three classes and a number of subclasses of medical men. It is not surprising that a determined effort was made to clear this situation. The reform did not start with the universities or the older corporations of physicians or surgeons. It began primarily with the surgeon-apothecaries or general practitioners of the country, who associated themselves in various groups such as the National Association of General Practitioners and the Provincial Medical and Surgical Association, which was formed at Winchester in 1832 and which more than twenty years later became the British Medical Association. The leaders of this movement, like most persons desiring improvement in conditions, wanted a root-and-branch action sweeping away all older and traditional forms and the constitution of a quite remodeled scheme of medical education, licensure and code of practice. But this is not the British way. Select committee after select committee of parliament was appointed to inquire into the problem, bill after bill was introduced, and finally in 1858 a full quarter century after the movement had become active, the medical bill was passed. The medical act of 1858 was frankly a compromise and more than a generation passed before it became generally acceptable. It established the General Medical Council. In the meantime the Poor Laws had been reconstructed again and again. After a few years struggle with contract practice, this form was given up in favor of an organized medical service of properly qualified men to treat the pauper sick. There had also arisen a system of voluntary medical insurance in the so-called Friendly Societies, which operated on the contract basis, under boards of lay persons, hired physicians as cheaply as possible, and did not hesitate to advertise and canvass to increase their membership. The British Medical Association contested this practice and in 1894 secured an inquiry which resulted in a declaration that it was unprofessional for a registered physician to be associated with a canvassing institution. Still these organizations continued to operate until the passage of the Medical Insurance Act of 1911.

It is difficult to give an accurate account of the establishment of the National Insurance Act, or the panel system. It occurred in that peculiar phase of English history stretching from 1908 to 1914, which George Dangerfield has just described in his book "The Strange Death of Liberal England." All sorts of changes, social, political and economic were in the air. The plan was proposed by the chancellor of the exchequer, who after a two months study of the German insurance system—in an interval when, according to his own statements, he was harassed with the possibility of war—outlined the National Insurance Act which was soon coupled with the Unemployment Insurance Act sponsored by Mr. Winston Churchill. The original form was close to the German one but a determined resistance by the medical profession led by the British Medical Association resulted in profound modifications. The Health Insurance Act became law in 1911 but more than twenty amendments of it have been passed in the quarter century of its existence.

The British Medical Association has played an important part in all health matters in Britain. Most of the numerous modi-

fications of the insurance act that have protected and improved the lot of the physician in panel practice are the outcome of its activities. The association has insisted on a high professional code among its members and it seems to have been extremely successful in maintaining this code. Finally, the association has succeeded, in an effort extending through generations, in raising the social status of the medical practitioner to an entirely new level. In military life it has made the physician an officer and a gentleman and in civil life a gentleman and a person of respect.

#### DISCUSSION

DR. WILBURT C. DAVISON, Durham, N. C. There are two reasons for the difference in the situation in England and the situation here, first, the size of the country. After all, England is only as big as North Carolina, and the population is much more uniform. I think it was said by General Cumming at one time, when some of the British were criticizing some of the health conditions in this country, that if we had a country as small as Great Britain we would take it out and whitewash it every morning. Second, the difference in the character of the people. Not only do they differ from our people in being much more uniform, but through the last eighty years there has been a tremendous effort on the part of the General Medical Council to bring out an appreciation of the differences in medical practitioners. There are about five different degrees in England. There is the L.S.A., Licentiate of the Society of Apothecaries, the lowest medical degree, and the British recognize that if they have a sore throat they may call in a Licentiate of the Society of Apothecaries but, on the other hand, if they have a dangerous illness they realize that they must call in a practitioner with a higher degree. Then there is L.R.C.P. and L.R.C.S., then the Bachelor of Medicine of London or Oxford or Cambridge, the M.D., a degree granted some years later, and then the Fellowship in the Royal College of Physicians and Royal College of Surgeons, and the people recognize the difference in those different groups. Also, they realize that a man's hospital affiliations give some index of his ability. That is, if a man in London is on the consulting staff of St. Bartholemew's Hospital or St. Thomas's Hospital he commands respect much more than a man who has no hospital affiliation. A third factor is the fact that the medical profession in England comes almost entirely from the upper middle class. In this country any one can study medicine provided he can borrow or work his way through medical school. In England that is not possible except in extreme instances. In this country we have a larger number of better physicians because we are drawing from a much wider group of society. On the other hand it probably means that we have a fair number of worse physicians, whereas the English average is much more uniform. The two types of medical practice that have been talked about a good deal as being applicable in this country are the panel system and the system of contributory hospital schemes or hospital insurance. I was a medical student in England three years and was there at the time the panel system started. It was unsuccessful the first two years, but at present most of the physicians I know operating under the panel system are satisfied with it. They have eradicated many of the difficulties and made many improvements, and I think it is certainly to the advantage of the public and to the medical profession to have this panel system but whether that would work in this country is an entirely different problem. I doubt that it would. One of the reasons for the success of the panel system, in addition to the uniformity of the profession and the authority of the General Medical Council to iron out difficulties is the fact that the people themselves started the panel system through the friendly societies. They got together and contributed a certain amount a week to get medical care they were unable to purchase otherwise. The same thing is true of the voluntary hospital insurance plan. The people themselves, through their parishes or through their employees organized and contributed voluntarily to get hospital care. In this country I doubt very much whether such a voluntary movement would be possible. One interesting situation is the thing going on in the bigger cities. The contributory schemes are helping such hospitals as St. Bartholemew's and St. Thomas's but are not completely covering the situation so it has been necessary for the London County Council to establish charity hospitals or county hospitals similar

to Cook County Hospital here or Bellevue in New York, and many of the patients not able to finance themselves through contributors' schemes are going to the county hospitals. They are presenting great difficulties to the British medical schools. The schools there haven't shown the same disposition to affiliate with the charity hospitals as the schools in America have.

### Instruction of Students and Interns in the Legal, Social and Economic Influences Affecting Medical Practice

DR STANHOPE BAYNE-JONES, New Haven, Conn. This article will be published in full in the *American Medical Association Bulletin*.

### The Present Curriculum and the Aims of Medical Education Are They Compatible?

DR LANGLEY PORTER, San Francisco. Too little acquaintance with living forces that are changing the social order before our eyes and too great devotion to sifting out the few grains of worth from the chaff of dead bibliographies are but two among many handicaps that are loaded on the student.

Can the curriculum be purged of the rests and residues and be recast so that it will equip men to meet the medical service needs of the modern community? Can the course in medicine be improved so that the student is trained to understand all things needed to protect health and to prevent disease in individuals and communities? If such aims are to be accomplished, the medical schools must be prepared to train four types of graduates. The first group consists of men whose temperaments and aptitudes fit them to replace the vanishing general practitioner, men able to administer all available medical services to individuals and to families. Second every medical school should be prepared to train a part of its student body to engage in public health activities. A third obligation that rests on the medical school concerns its duty to provide a limited number of well trained specialists and to revise present conceptions about what constitute proper and legitimate fields for specialization. Today by far too large a proportion of medical men are specializing in very narrow fields. Finally, it is of the utmost importance that the need for highly trained investigators and teachers be remembered. Whether the students are to be practitioners, health officers, specialists or investigators, their student life should be passed in close companionship and they should be guided by the hope to achieve a pattern expressed in a schedule of studies that emphasizes principles rather than details that points out opportunities and awakens interest and enthusiasm, that illuminates the unities of medicine and minimizes the values of factual knowledge if unrelated to great integrating principles.

To carry out its proper functions, the medical school must be prepared to produce in proper proportions, recruits for each of these proposed groups and the schedule of studies in the curriculum must reflect the philosophy behind the plan and the ability to carry it out. Certainly a curriculum representing a mosaic of independent specialist courses does not, nor can it, reflect such a philosophy nor is it likely to guide students to the opportunities that can best be used to form the background essential to the creation of great medical practitioners.

Among the residues that hamper improvement in medical training hardly any is more deplorable than the semester system. This holdover from the organization of grammar school teaching may be popular with instructors who like to reserve one semester entirely for their own research work, but in practice the result too often is that the student's time is wasted and the man who desires to repeat certain work is dissuaded from doing so because of the long wait imposed on him. Often the resulting lack of preparation handicaps him so that later he abandons medicine or, managing to get by, he remains mediocre. Another unfortunate residue, less common than formerly, is the idea that one department in the medical school can carry on its work without relation to the teaching of another.

Of what value are the misnamed "preclinical" sciences to medicine unless the physician can bring them to the clinic to the bedside? How is the student to be taught that the unfortunate distinction formerly made between laboratory studies and physical examinations is heretical—that it is another "residue" left over from the days when the so-called preclinical

man and the ward-walking physician misapprehended and disliked each other? How can the student be made to see that laboratory examinations alone are no more scientific, no more revealing, than the facts to be gathered from sight, sound, touch and smell? The neophyte arrives at the idea slowly. Often he does not get it at all, and so he comes to estimate laboratory observations as a sort of magic, infallible and contradictory of all other observations, even of common sense, or else to regard them as a useless burden to be avoided even, if need be, by dishonest expedients.

The primary error behind this weakness was laid long ago when increasing factual detail made it expedient that the old Chair, then known as the "Institutes of Medicine," be divided into anatomy, physiology and biochemistry, and it was exaggerated when ever increasing new facts brought new subjects that it was felt had to be included in the curriculum, until today every student is taught by a score of specialists, each armed with his own textbook and journal, and each, when examination time comes, demanding that the student prove himself almost as much a master in his special field as is the master himself.

It may be that what is needed is a plan for medical education in which the total hours available are treated as a single course, a course in medicine which attempts to integrate all the sciences and arts utilizable in practice and which aims to produce a total based on a pattern of guiding motifs which will appear in the very beginning of premedical education and be carried through until the completion of the student intern year. The major guiding motifs would naturally be physiology and pathology. Psychology, economics and sociology would be essential.

Through the clinicopathologic conference, a most important link between the fundamental and the medical sciences has been maintained, to the enrichment of the art of medicine. In some schools this has been followed by elevating clinical anatomy above its former didactic position and advancing it to a point at which the anatomist makes ward rounds with the surgeon. He is ready to consult with him on problems involving anatomic knowledge, and his laboratory is available to provide dissection material. He is ready to confer with and advise such of the students and staff as need exercise in anatomy. In some schools the same sort of arrangement is being opened to biochemists, physiologists and bacteriologists, that they may cooperate with medical, pediatric and obstetric teachers and clinicians in ways that are stimulating and fruitful. The same sort of integration is being applied to the study of special or complicated subjects. Men from all departments interested, who can bring special knowledge to bear in the intricate problems concerned, are constituted into committees which confer and discuss the important implications in open sessions. Such developments are bound to reflect themselves in curricular changes. May it not be that the time has come to go over the top, to follow more dynamic plans of campaign strategy?

### DISCUSSION

DR JOHN WICKOFF, New York. Dr Porter has asked a question, and I wonder whether the question can be answered. Surely there is no such thing as a single curriculum. I wonder if there should be such a thing as a single curriculum. Must not curriculums always be individual things? The discussion this morning has pointed out that the scope of medical education has enlarged. After all doesn't a curriculum depend on three sets of bearings? First there is the student's preparation before he comes to medical school, second, the changes which we have been discussing today, the changes in medicine, and third the changes in his education after he leaves medical school. Consequently, in order to meet these variables, a curriculum must be constantly changing. In each school a curriculum must modify itself continuously depending on changes in its physical facilities and changes in its personnel, and unless a school is constantly conscious of the fact that these facilities are changing, that certain members of the faculty are growing older, that there are certain changes being made in the faculty, that the curriculum cannot be the best curriculum there may be in that particular institution. The greatest fault in the making of a medical school curriculum is the tendency of one institution to copy the curriculum of another institution, because of the fact that our institutions are in different places, that we have different relationships. Dr Porter spoke of the semester system

Of course, the putting of subjects into compartments is the thing which all of us have to fight. However, it seems to me there is not much more difficulty when a block system is used than when a course may extend over two and one-half years.

There is a point that I should like to stress. It seems to me that in every curriculum there should be an effort to put increased responsibility progressively on the students of medicine. I can think of no profession that has to carry the responsibility that the physician has to carry. The intern on the day he enters the hospital, has to take over a load of responsibility, and unless we take a good deal of care I think our curriculums are apt to be so arranged that our student is not given such responsibility, and certainly he cannot learn responsibility by precept, he must learn it from practice. Of course if a curriculum is going to be a changing thing there must be some type of an organization as Dr. Porter has said, to supervise it. Here I believe there should not be one single guide. I think that depends on the institution. In some institutions it may be a benevolent despot. In other institutions it may be a wideawake committee. There is one thing it should not be, and that is a committee which is simply made up of certain officers in the institution that is it should not be a committee which is simply made up of department heads, because when a curriculum committee is made up that way there is danger of its becoming frozen and the curriculum is not a living thing as we would like to have it.

DR S P LUCIA, San Francisco. Just a remark in relation to Dean Wyckoff's remarks. We do not wish that a curriculum will be fixed, that it might be used in other medical schools. The principles under which a good curriculum is operating or on which it is built, deals with fundamentals. We have stressed fundamentals. We have gone so far in our curriculum as to make it necessary for the members of the fundamental classes, preclinical members, to be present on a ward round. We have abolished the didactic teaching in the third year. Our students enter the wards. After the completion of the second year they are turned loose, so to speak, to learn their medicine first hand. Dean Porter chose a junior department member to be chairman of the curriculum committee. Then he chose young bloods to compose that curriculum committee. I think there would be considerable difficulty if the heads of departments, for instance, composed the curriculum committee.

## RADIO BROADCASTS

The American Medical Association broadcasts over WEAf, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p m eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

**Red Network**—The stations on the Red network of the National Broadcasting Company are WEAf, WEEL, WTIC, WJAR, WTAR, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

**Pacific Network**—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOVO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

- April 14 Summer Camps Morris Fishbein M D
- April 21 Health and the School Morris Fishbein M D
- April 28 Infant Care W W Bauer M D

## BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session.

### NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company.

An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes. Date to be announced.

Address by Dr. James Tate Mason, President of the American Medical Association. Fifteen minutes. Date to be announced.

May 12, 4 p m. The regular dramatized program "Your Health" (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

### COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System.

May 11, 1 30 p m. An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2 p m. A news broadcast outlining the main events of the convention. Dr. W W Bauer. Fifteen minutes.

A dramatized program (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

The hour given is central standard time, eastern standard time is one hour later, mountain time one hour earlier, and Pacific time two hours earlier. Where date and time are not specified, an announcement will be made later.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ALABAMA

**State Medical Meeting at Montgomery**—The Medical Association of the State of Alabama will hold its annual meeting in Montgomery, April 21-23, with headquarters at the Jefferson Davis Hotel and under the presidency of Dr. Charles A. Thigpen, Montgomery. The program will be presented by the following:

- Dr. Edward W. Peterson, New York: Appendicitis in Infancy and the Younger Group of Children.
- Dr. Fred W. Rankin, Lexington, Ky.: Modern Management of Organic Lesions of the Colon and Rectum.
- Dr. Edgar Burns, New Orleans: Surgery of the Prostate.
- Dr. Carl H. Davis, Milwaukee: motion picture demonstrations: Normal Labor and Use of Forceps.
- Dr. Willis C. Campbell, Memphis: Physiologic Principles Applied to the Treatment of Fractures.
- Dr. Andrew B. Rivers, Rochester, Minn.: Etiology, Pathology and Treatment of Peptic Ulcer.
- Dr. Walter E. Dandy, Baltimore: Diagnosis and Treatment of Brain Tumors.
- Dr. John H. Musser, New Orleans: Abdominal Pain Due to Extra Abdominal Conditions.
- Dr. Edward C. Flett, Memphis: Ocular Tuberculosis.
- Dr. William D. Haggard, Nashville: Recent Developments in the Study and Surgery of Gout.

Dr. William D. Partlow, superintendent of the Alabama Insane Hospitals, Tuscaloosa, will deliver the Jerome Cochran Lecture on "The Debt the World Ows to Medical Science." A public meeting will be held Wednesday evening. Dr. Thomas Parran, Jr., surgeon general, U S Public Health Service, will discuss "The Next Achievement in Public Health," and Dr. William W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association, Chicago, "Popular Beliefs That Are Not So."

## CALIFORNIA

**Department of Public Health Issues Handbook**—Under the editorship of Dr. Paul J. Hanzlik, the Department of Public Health of the City and County of San Francisco has issued a handbook of "Accepted Remedies, Symptoms and Treatment of Poisoning, Diagnostic Procedures and Miscellaneous Information, to be used by physicians and others employed in city

and county institutions. The remedies recommended are limited largely to those in the U. S. Pharmacopeia, National Formulary, New and Nonofficial Remedies and to accepted dental remedies. It is anticipated that these limitations will do much to lower the drug bills of the institutions concerned.

**Medicodental Meeting**—A joint session of the Los Angeles County Medical Association and the Los Angeles County Dental Society will be held at the headquarters of the medical society, Los Angeles, April 14. The following speakers will present the program:

David W. McLean, D.D.S., Mechanical Causes of Dental Pathology  
Dr. Lewis Gunther, General Concepts of Calcium Metabolism  
Dr. John Martin Askey, Misconceptions of Calcium Metabolism  
Dr. Samuel J. Glass, Endocrine Aspects of Some Dental Abnormalities  
Julio Endelman, D.D.S., A Plea for a More Thorough Medicodental Cooperation

**Society News**—Dr. Charles F. McCuskey, Los Angeles, read a paper entitled "Anesthesia and Anesthetics" before the Santa Barbara County Medical Society, February 10. At a meeting of the Alameda County Medical Association, Oakland, March 16, speakers included Drs. Judith Ahlem on common factors in minor psychoses and William F. Holcomb, osteomyelitis. Dr. Ernest M. Hall, Los Angeles, discussed "The Adrenals—A Clinical and Pathological Study" before the San Diego County Medical Society, March 10. The San Francisco County Medical Society will be addressed April 14 by Drs. William J. Kerr on "Geographic Distribution of Endemic Goiter in the United States," and Jay Marion Read, "Relationship of Exophthalmic Goiter to Endemic Goiter."

### CONNECTICUT

**Memorial Services for Dr. Mendel**—Services commemorating the late Lafayette Benedict Mendel, Ph.D., Sterling professor of physiologic chemistry, Yale University School of Medicine, New Haven, will be held at Strathcona Hall, Yale University, April 16. Speakers will include James Rowland Angell, LL.D., president of the university, who will preside, Russell Henry Chittenden, Sc.D., New Haven, Frederic Collin Walcott, D.Sc., Norfolk, and Dr. Phoebe Aaron T. Levene, New York.

### FLORIDA

**Personal**—Dr. Julius C. Davis, Quincy, has been appointed a member of the state board of medical examiners, succeeding Dr. Eugene G. Peek, Ocala.

**Radio Symposium on Medical Economics**—The committee on public relations of the Florida Medical Association began a weekly radio program of lectures on medical economics, March 1. The following physicians are participating: John S. Tuberville, Century; George C. Tillman, Gainesville; Homer L. Pearson Jr., Miami; Orion O. Feaster, St. Petersburg; Calvin D. Christ, Orlando; Herbert L. Brvans, Pensacola; Thomas H. Bates, Lake City; William H. Spiers, Orlando; Edward Jelks, Jacksonville; Thomas M. Palmer, Jacksonville; and James Ralston Wells, Daytona Beach.

### GEORGIA

**Georgia University News**—Dr. George Lombard Kelly, Augusta, dean, University of Georgia School of Medicine, was appointed superintendent of the University Hospital by the board of trustees at a meeting, March 12, effective April 1. Carl G. Hartman, Ph.D., Baltimore, addressed the Louis A. Dugas Journal Club of the university, March 16, on "The Physiology of Menstruation." Construction of a new laboratory building on the campus of the medical school at a cost of \$75,000 will begin in the near future.

**State Medical Meeting at Savannah, April 21-24**—The Medical Association of Georgia will convene in Savannah for its annual session April 21-24, under the presidency of Dr. James E. Paulin, Atlanta, with headquarters at the DeSoto Hotel. A public meeting Wednesday evening will be addressed by Drs. Arthur M. Shipley, Baltimore, on "The Problem of the Diaphragm," James S. McLester, Birmingham, Ala., President, American Medical Association, "Influence of the Present Day Depression upon the Nutritive State of the American People," and Jonathan C. Meakins, Montreal, "Management of the Chronic Heart." Dr. William Bosworth Castle, associate professor of medicine, Harvard Medical School, Boston, will deliver the Abner Wellborn Calhoun Lecture, Wednesday noon, on "Fundamental Aspects of the Diagnosis and Treatment of Anemia." A symposium on the thyroid and parathyroid problems will be presented by Drs. Thomas C. Davison, James Gaston Gay, and Benjamin Hill Clifton, all of Atlanta,

and John Reid Broderick, Savannah. In addition, the following physicians will speak, among others:

William Edward Storey, Columbus, The Dilution and Concentration Tests of Kidney Function  
Joseph D. Gray, Augusta, Primary Bronchial Carcinoma  
Hal M. Davison, Atlanta, Chronic Arthritis and Fibrositis  
Millard E. Winchester, Brunswick, Use of Atabrine in the Control and Treatment of Malaria  
James R. McCord, Atlanta, Conservative Obstetrics Will Materially Lower the Mortality Rate in Eclampsia  
Thomas F. Abercrombie, Atlanta, Public Health Problems in Georgia  
Howard J. Morrison, Savannah, Antitoxin Treatment of Meningococcal Infections and Meningitis  
William A. Smith, Atlanta, Treatment of Myasthenia Gravis  
John Calvin Weaver, Atlanta, Hemorrhages of the Brain: Their Differentiation and Treatment

The annual banquet will be Thursday evening with Dr. Cornelius F. Holton, Savannah, as toastmaster. Entertainment will include golf, fishing, and a trap shooting tournament. The woman's auxiliary will hold its annual meeting at the Hotel Savannah, April 21-23.

### ILLINOIS

**Society News**—Dr. Paul C. Schnoebelen, St. Louis, addressed the Madison County Medical Society in Highland, March 6, on bone tumors, and Dr. Leith H. Stocumb, St. Louis, rectal diseases and their treatment. Dr. Roland M. Klemme, St. Louis, addressed the Vermilion County Medical Society, March 3, on "Traumatic Injuries of the Central Nervous System and Their Emergency Treatment." Dr. John A. Wolfer, Chicago, addressed the Peoria City Medical Society, March 17, on "Carcinoma of the Rectum and Colon." At a meeting of the Kankakee County Medical Society in Kankakee, March 12, Dr. Louis W. Sauer, Evanston, discussed whooping cough.

### Chicago

**Department of Neurology Created**—Dr. Eric Oldberg, acting head of the department of surgery, University of Illinois College of Medicine, since the death of Dr. Carl A. Hedblom in 1934, has been appointed professor and head of a newly created department of neurology and neurologic surgery, effective September 1. Dr. Oldberg, who is 34 years old, graduated from Northwestern University School of Medicine in 1928.

**Society News**—At a meeting of the Chicago Surgical Society, April 3, speakers included Drs. Robert B. Malcolm on "Surgery of Salivary Glands," Graham A. Kernwein, "Effect of Starvation on Fracture Healing," and Sumner L. S. Koch, "Osteomyelitis of the Bones of the Hand." Dr. Mary G. Schroeder discussed "The Diagnosis and Treatment of Psychoneurosis" before the Chicago Council of Medical Women, April 3. The Chicago Laryngological and Otolological Society devoted its meeting, April 6, to a symposium on pathology. At a meeting of the Chicago Gynecological Society, April 17, Dr. Elmer L. Sevringhaus, Madison, Wis., will discuss "Current Endocrine Problems in Gynecology" and "A Study of Women with Irregularities of Menstruation," Carl R. Moore, Ph.D., of the University of Chicago, and Dr. Ralph E. Campbell of the University of Wisconsin Medical School, Madison, will discuss these papers.

**Lectures on Psychoanalysis**—The Institute for Psychoanalysis of Chicago announces the following lectures and seminars during its third quarter of the current year:

Mortimer Adler, Ph.D., Methods and Subject Matter of Psychology  
Drs. Franz G. Alexander and Thomas M. French, alternately, Psychoanalytic Interpretation of Psychotic Cases

For the members of the Chicago Psychoanalytic Society and the candidates of the institute only, the following is offered:

Dr. Alexander, Clinical Conferences  
Dr. Alexander, Termination of Analyses (seminar on technique)  
Dr. French, Seminar on Review of Psychoanalytic Literature

Registration for the courses should be made in advance. Fees vary for the courses. The first session began April 4, but new courses are scheduled to begin in subsequent weeks, extending into June. Address: The Institute for Psychoanalysis, 43 East Ohio Street, Chicago.

### IOWA

**Society News**—Dr. Maurice C. Howard, Omaha, gave a lecture on "Cardiac Irregularities" before the Shelby County Medical Society, February 11, in Harlan. The Woodbury County Medical Society was addressed in Sioux City, February 12, by Dr. Robert S. Dinsmore Jr., Cleveland, on "Practical Points in the Treatment of Gallbladder Disease." Dr. Carl H. Gellenthien, Valmora, N.M., addressed a special meeting of the Des Moines Academy of Medicine and Polk County Medical Society, March 10, on "Practical Methods of



**Sanatorium Treatment of Pulmonary Tuberculosis**—A symposium on obstetrics was presented at the meeting in Des Moines, February 25, Drs Walter E Baker, Floyd W Rice, Audra D James and William O Purdy were the speakers.—The program of the Linn County Medical Society, April 10, was a clinic in psychiatry given by Dr Andrew H Woods, medical director of the Iowa State Psychopathic Hospital, Iowa City, and his staff

### KANSAS

**Course in Neuropsychiatry**—The medical staff of the Menninger Clinic will conduct its second annual graduate course in neuropsychiatry in general practice, April 20-25, at the Menninger Clinic, Topeka. Guest speakers will be Drs Israel S Wechsler, professor of clinical neurology, Columbia University, New York, James W Kernohan, associate professor of pathology, University of Minnesota School of Medicine, Rochester, Frederick P Moersch, Rochester, Minn, and Harry Wilkins, associate professor of surgery, University of Oklahoma School of Medicine, Oklahoma City

### MARYLAND

**Society News**—The Baltimore City Medical Society held a joint session with the Baltimore City Dental Society, March 20, a medicodental symposium was presented by Dr Sydney R Miller, George M Anderson, DDS and B Lucian Brun, DDS.—The Baltimore County Medical Society was addressed at the University Hospital, Baltimore March 18, by Drs Allen F Voshell and Edward A Looper on physical therapy and cancer of the larynx, respectively

**Personal**—Dr John H Janney Jr, Annapolis, since 1931 health officer of Anne Arundel County, sailed from New York for Rumania, April 8. As a member of the Rockefeller Foundation Dr Janney was placed in charge of the unit in Anne Arundel County when a model health department was established there under the auspices of the foundation and the Johns Hopkins University School of Hygiene and Public Health, cooperating with the state and county health departments. The university and the foundation withdrew from the experiment in 1934, but Dr Janney remained as health officer

### MASSACHUSETTS

**Personal**—Dr Walter B Cannon Boston, has been elected a member of the board of scientific directors of the Rockefeller Institute for Medical Research New York.—Dr Frank Fremont-Smith resigned as assistant professor of neuropathology at Harvard Medical School, February 1

### MICHIGAN

**The Huber Memorial Volume**—A memorial volume to Dr Gotthelf Carl Huber, who at the time of his death in 1934 was dean of the University of Michigan Graduate School of Medicine, is now being prepared by a committee under the direction of the dean of the medical school and the board of directors of the Alumni Association. The volume will contain scientific articles by Dr Huber's students and co-workers an account of his life and a complete bibliography. It will appear as a regular issue of the *Journal of Comparative Neurology* and will contain about 700 pages and 200 illustrations. Those who wish to participate in paying for this production may do so by sending a check to Dr John T Hodgen, Blodgett Medical Building East Grand Rapids. The names of contributors will be recorded. Those subscribing \$10 or more to the guaranty fund may secure the volume at half price

**Society News**—Dr Albert C Furstenberg, Ann Arbor, addressed the Calhoun County Medical Society, February 25 on "Acute Infections of the Throat and Soft Tissues of the Neck."—Dr Bruce H Douglas Detroit addressed the East Side Physicians' Association, February 27 on Present Day Trends in Tuberculosis.—At a meeting of the Wayne County Medical Society with the Detroit Bar Association, March 16 Albert E Meder, LL.D., Detroit discussed the legal point of view of social security legislation, and Dr Stanley W Insley the medical point of view.—The Detroit Academy of Surgery was the guest of Dr Nelson M Percy at the Augustana Hospital, Chicago, March 14.—Dr Irving McQuarrie Minneapolis, discussed "Recent Studies on Etiology and Treatment of Edema in Children" before the Detroit Pediatric Society, March 4.—Dr Frank J Sladen Detroit addressed the Oakland County Medical Society in Pontiac March 17, on arthritis

### NEVADA

**Annual Registration Due May 1**—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the Board of Medical Examiners, on or before May 1, a tax of \$2. Failure to do so operates to forfeit a licentiate's right to practice medicine, and his license to practice can be reinstated thereafter only on the payment of a \$10 penalty

### NEW YORK

**Institute on Vision**—The blindness prevention bureau of the New York State Department of Social Welfare sponsored an institute for the conservation of vision in cooperation with the Medical Society of the County of Westchester and local organizations at Yonkers, March 3. Physicians on the program included

Dr Angelo J Smith Yonkers Anatomy and Physiology of the Eye  
Dr Raymond E Meek New York Nutrition in Relation to the Eyes  
Dr Earl P Lisher Yonkers Relationship of Nose and Throat Infections to the Eye  
Dr Donald E Tinkess New Rochelle Errors of Refraction  
Dr James G Morrissey Yonkers Ocular Muscle Defects  
Dr Edward C Wood White Plains The Eye in Relation to General Disease  
Dr Laurence D Redway, Ossining Eye Injuries and Sympathetic Ophthalmia

**Alumni Meeting in Buffalo**—The Alumni Association of the University of Buffalo School of Medicine will present its second annual graduate clinical meeting April 18, with the following program

Dr Donald C Balfour Rochester Minn Problems Concerned in the Management of Lesions of the Stomach and Duodenum  
Dr Walter C Alvarez Rochester Minn Helpful Hints in the Diagnosis of Puzzling Types of Indigestion  
Dr Charles A Elsborg New York Localization and Diagnosis of Brain Tumors by Olfactory Tests  
Dr Nicholson J Eastman Baltimore Treatment of Asphyxial Neonatorum  
Dr Ernest E Irons Chicago Chronic Arthritis a General Disease Requiring Individualized Treatment  
Dr Philip D Wilson New York Fractures in the Region of the Elbow  
Dr Francis F Schwenker Baltimore, Immunization in the Treatment of Infectious Diseases

At the annual banquet at the Hotel Statler the speaker will be Dr Reginald Fitz, Boston, who will present "The Biography of the Famous Dr Watson of the Sherlock Holmes Stories"

**Bills Introduced**—S 1834 and A 2188 propose to grant to physicians, treating persons injured through the fault of others, liens on all rights of action, claims judgments, compromises or settlements accruing to the injured persons by reason of their injuries. S 1893, to amend the workmen's compensation act, proposes to permit an employee injured in the course of his employment to obtain at his employer's expense such dental care as may be necessary because of the industrial injury and to permit the employee to choose a dentist from a list of approved dentists to be compiled by the industrial commissioner. The bill also proposes to add three members to the industrial council, who are to be dentists. A 2175 to amend the law relating to certificates of birth, proposes that a certificate of birth shall contain a photograph of the fingerprints of the mother and the footprints of the child, the impression of which is to be taken as soon after the birth of the child as is practicable. S 1812, to supplement the pharmacy practice act proposes to prohibit the sale or other distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases without a license from the state board of pharmacy authorizing such sale or distribution. The provisions of the bill, however, are not to apply to licensed physicians. The bill further prohibits the sale of such appliances, drugs or medicinal preparations unless their containers or labels specifically identify the manufacturer and unless such goods comply with standards which may be prescribed by the division of laboratories and research in the department of health. S 1862, to amend the medical practice act, proposes to require applicants for licenses to practice medicine to be citizens of the United States. A 2248 to amend the medical practice act, proposes, in addition to the grounds now stated in the law, to authorize the revocation of the license of a physician who (1) has employed, lured, procured or induced a person not licensed to practice medicine in the state to so practice, (2) has aided and abetted in the practice of medicine a person who is not licensed to practice medicine in the state, or (3) has advertised for patronage by means of handbills posters, circulars, flamboyant signs, stereopticon slides, motion pictures, radio or magazines



## New York City

**Harvey Lectures**—The sixth Harvey Lecture of the season will be delivered by Dr Warren H Lewis, professor of physiologic anatomy at Johns Hopkins University School of Medicine, Baltimore, on "Malignant Cells." The lecture will be at the New York Academy of Medicine, April 16. Dr Ivan de Burgh Daly, professor of physiology, University of Edinburgh, Scotland, will deliver the seventh lecture, May 21, on "The Physiology of the Bronchial Vascular System."

**Society News**—Dr Joseph C Aub Boston, addressed the New York Endocrinological Society, March 25, on "Abnormalities of the Thyroid Glands."—Speakers at a meeting of the National Society for the Advancement of Gastro-Enterology at the New York Academy of Medicine, March 24, were Drs Thomas Fitz-Hugh Jr, Philadelphia, on "Acute Gonococcal Perihepatitis—A New Syndrome of Right Upper Quadrant Abdominal Pain in Young Women" Reuben J Erickson, Albany, "Tuberculosis of the Intestine", Lester R Whitaker, Boston, "Electrocholecystocausis," and Henry Baker, Boston, "Insulin Treatment in Gastro-Intestinal Diseases."

**Free Service Denied to Persons Able to Pay**—Investigation of the financial status of applicants for free service in city hospitals or in private hospitals at city expense has resulted in a saving of about \$1,000,000 to the city, Dr Sigismund S Goldwater, commissioner of hospitals, announced recently. The division of investigation found in 1935 that nearly 9 per cent of those who applied for free hospitalization in city institutions, 12 per cent in private general hospitals and 5 per cent in private special hospitals were not eligible for free care at the taxpayers' expense. Before 1935 only those who actually occupied hospital beds underwent investigation, but clinic applicants are also investigated now, with the result that in 1935 over 7 per cent were rejected as not eligible. The division of investigation made decisions on 622,299 applicants during the year, 519,136 in the city institutions.

**Hospital News**—The Queensboro Hospital, a fifty-four bed institution, was merged with the new Queens General Hospital March 1. The smaller hospital occupies part of the grounds of the new 580 bed general hospital, which was opened last October.—The Society of the New York Hospital announced February 21 that the Convalescent Home for Children, at White Plains, had been closed for an indefinite period. For several years operation of the home has resulted in a deficit of about \$50,000 a year, a sum which the society can no longer meet, it was said. It has cared for more than 22,000 children in the twenty eight years of its existence.—A new twelve story nurses' home and school is to be built immediately for St Luke's Hospital at a cost of \$1,200,000, it was announced March 5. It is designed to accommodate 300 nurses.—Dr Sigismund S Goldwater, commissioner of hospitals, recently appealed to private hospitals that receive city subsidies to take more ward patients to relieve overcrowding in the city's institutions. He pointed out that city hospitals are heavily overloaded, while wards in private hospitals are only 75 per cent occupied.

## NORTH CAROLINA

**Society News**—At the annual meeting of the Second District Medical Society in New Bern, recently, speakers included Drs Paul H Ringer, Asheville, and Louis B McBraver, Southern Pines, president and secretary, respectively, of the Medical Society of the State of North Carolina, James G Ramsay, Washington, "Ruptured Duodenal Ulcer", Elwood R Boney, Kinston, "Allergy in General Medicine," and David T Smith, Durham, "Vincent's Infections of the Lung."—Dr Karl Schaffle Asheville, addressed the Buncombe County Medical Society, March 2 on "Nervous Disorders Associated with Pulmonary Tuberculosis."—Dr Lester C Todd, Charlotte discussed allergy at a meeting of the Catawba Valley Medical Society, Lincolnton, March 10.

## OKLAHOMA

**Society News**—Drs Ray M Baljeat and Carroll M Pounders, Oklahoma City, addressed the Woods-Alfalfa County Medical Society, Alva, recently, on "Intratracheal Use of Iodized Oil in Treatment of Intractable Asthma and 'Pneumonia in Infancy and Childhood respectively."—Dr Charles F Walker, Grove, addressed the Craig County Medical Society, Vinita, April 7, on "Infections Following Labor and Salpingitis."—Drs Albert W Pigford and George R Osborne, Tulsa, addressed the Rogers County Medical Society, Claremore, April 20, on carcinoma and obstetrics, respectively.

## PENNSYLVANIA

**Personal**—Dr John Speer Donaldson, Pittsburgh, has been appointed chief surgeon of the State Hospital for Crippled Children, Elizabethtown, succeeding Dr Francis S Chambers.—Dr James S Hammers, former superintendent of the Pittsburgh City Home and Hospital, Mayview, has been appointed medical director of the Lancaster County Hospital and Hospital for Insane, Lancaster.—Dr George T Rodman, Hawley, recently celebrated the fiftieth anniversary of his medical practice.

**Society News**—Dr Charles L Brown, Philadelphia, was guest speaker at a meeting of the Schuylkill County Medical Society, Pottsville, March 11, on "Management of Congestive Heart Failure."—Dr Edward C Rosenow, Rochester, Minn, addressed the Erie County Medical Society, Erie, March 10, on "Newer Experimental and Clinical Studies on Focal Infections and Elective Localizations."—Dr William Devitt, director of Devitt's Camp for tuberculosis near Allenwood, was elected president of the Pennsylvania Tuberculosis Society at its annual meeting February 26. Dr Devitt succeeds Dr Charles Howard Marcy, Pittsburgh, who served four years.

## Philadelphia

**Hospital News**—Dr Wilbur P Rickert has been named superintendent of the Philadelphia Hospital for Mental Diseases. Two new buildings will be erected at the hospital, which is said to be overcrowded.—Dr Harry Lowenburg has been appointed pediatrician to the Philadelphia General Hospital.—Dr George R Minot, Boston, delivered the Benjamin Rush Lecture before the staff of the Pennsylvania Hospital, January 16, on "Some Aspects of Anemia and Purpura Hemorrhagica."

**County Society to Hold Graduate Institute**—The Philadelphia County Medical Society will present its first graduate institute at the Bellevue-Stratford, April 20-24. The institute will deal with cardiovascular and renal diseases, which will be discussed by fifty-three members of the faculties of the University of Pennsylvania School of Medicine and Graduate School of Medicine, Jefferson Medical College, Temple University School of Medicine and the Woman's Medical College of Pennsylvania. At the opening luncheon Dr George C Yeager, president of the county society, will preside and speakers will be Mayor S Davis Wilson, Drs William C Hunsicker, director of the Philadelphia Department of Public Health and Maxwell J Lick, Erie, president-elect of the Medical Society of the State of Pennsylvania. A banquet will be held Wednesday evening, April 22, at the Bellevue-Stratford with Drs Alexander H Colwell, Pittsburgh, president of the state society, and Frank H Lahey, Boston, as speakers. Later Dr Lahey will deliver the J Chalmers Da Costa Oration on "Management of Biliary Tract Disease" at the regular meeting of the county society.

## SOUTH CAROLINA

**State Medical Meeting**—The eighty-eighth annual session of the South Carolina Medical Association will be held in Greenville, April 21-23 with headquarters at the Poinsett Hotel. The guest speakers will be Drs George W Crile, Cleveland and William B Porter, Richmond, Va. South Carolina physicians listed on the program include:

Dr Charles R F Baker Sumter Treatment of Intestinal Obstruction by the Use of the Duodenal Tube and Suction  
Dr Roy P Finney Spartanburg Bedside Observations on the Dying  
Dr David F Adecock Columbia Blood Transfusion  
Dr Roger G Doughty Columbia Thyroid Disease  
Dr Allen Izard Josey Columbia Cardiac Pain and Its Management  
Dr James R Young Anderson Clinical Study of 2,500 Cases of Appendicitis at the Anderson County Hospital over a Thirteen Year Period  
Dr Carl B Epps Sumter The Question of Drainage in Abdominal Surgery  
Dr Hilley Rudisill Jr Charleston Facts of General Interest About X Rays and Radium  
Dr John M van de Erve Charleston Vesicular Eruptions of the Hands  
Dr Joseph H Cutchins Easley Simplified Ketogenic Diet in the Treatment of Bacillary Infection of the Urinary Tract  
Dr Joseph I Waring Charleston Prevention of Loss of Weight in the New Born  
Dr Benjamin O Whitten Clinton Psychology of Subnormal Individuals  
Dr LeGrand Guerry, Columbia A Method for Reconstruction of the Common Duct  
Dr William R Wallace Chester Screw Worm Infestation  
Dr Daniel Lesesne Smith Jr Spartanburg Treatment of Congenital Syphilis

## TENNESSEE

**Death Rates Declined in 1935**—The Tennessee Department of Health reports that the provisional death rate for 1935 was 10.6 per thousand of population as compared with 10.9 for 1934. The infant death rate declined from 74.8 per thousand live births in 1934 to 64 in 1935, a new low record for the state. The typhoid death rate was 6.5 per hundred thousand of population, compared with 7.5 in 1934. The provisional mortality rate from diphtheria was 6.5, also a reduction from the 1934 rate of 7.4. The birth rate was 18.5 per thousand of population, an increase from the 1934 rate of 18.4.

**Society News**—Drs. Carl W. Brabson, Telford, and Prentiss E. Parker, Johnson City, addressed the Washington County Medical Society, Johnson City, March 5 on "Diseases of the Stomach" and "Sympathectomy in the Treatment of Thrombo-Angitis Obliterans" respectively. At a meeting of the Campbell County Medical Society, Jellico, recently, Dr. Russell W. Lewis, Westbourne, discussed measles. Drs. Edward F. Buchner, Jr. and Franklin B. Bogart, Chattanooga, addressed the Chattanooga and Hamilton County Medical Society, March 5 on "Rate of Growth Before Birth" and "Radiation Therapy and the General Practitioner" respectively. A symposium on cancer was presented at the meeting of the Dyer Lake and Crockett Counties Medical Society, March 4 by Drs. Charles G. Andrews, Robert L. Sanders, and John L. McGehee, Memphis. Dr. Augustus H. Lancaster discussed congenital syphilis at a meeting of the Knox County Medical Society, Knoxville, March 3.

**State Medical Meeting in Memphis**—The one hundred and third annual meeting of the Tennessee State Medical Association will be held in Memphis, April 14-16. Guest speakers will be Drs. James S. McLeister, Birmingham, Ala., President, American Medical Association, Martin Hayward Post, St. Louis, who will speak on "Tuberculin Therapy in Ocular Tuberculosis," and John S. Coulter, Chicago, "Physical Therapy in Chronic Arthritis." Tennessee physicians listed on the program include:

Dr. Edward Dunbar Newell, Chattanooga, Local Anesthesia in the Reduction of Fracture.  
Dr. Jesse C. Hill, Knoxville, Afebrile Exhaustive Psychosis Following Sickness.  
Drs. William D. Anderson and Walter S. Lawrence, Memphis, An Evaluation of Radiation in Certain Diseases of the Female Pelvis.  
Dr. Edward D. Mitchell, Jr., Memphis, Symptoms of Peptic Ulcer.  
Dr. George R. Livermore, Memphis, Urinary Antiseptics.  
Dr. Henry B. Gotten, Memphis, Obesity and Malnutrition.  
Dr. William T. Pride, Memphis, Repairs of New and Old Lacerations Following Childbirth.  
Dr. Lucius E. Burch, Nashville, Cesarean Section—Indications, Contra-indications and Technique.  
Dr. William R. Cate, Nashville, Pneumonia with Special Reference to Typing and Specific Therapy.  
Dr. Wilson C. Williams, Nashville, The State Health Program.  
Dr. William E. Boyce, Flatwoods, The Chemistry of Barbituric Acid and Its Derivatives.

The Tennessee State Pediatric Association will hold its annual meeting, April 14, with Dr. Hugh McCulloch, St. Louis, as guest of honor. The women's auxiliary will also meet April 14-16.

## WISCONSIN

**Vital Statistics**—The state board of health reports that the provisional death rate for 1935 is 10.1 per thousand of population, the same as the official rate for 1934. Heart disease with a rate of 248.1 per hundred thousand and cancer with a rate of 124.7 were the leading causes of death. The rate of maternal mortality was 3.6 per thousand live births compared with a final rate of 4.2 in 1934; this is the lowest rate ever reached in Wisconsin. The infant mortality rate was 45.2 per thousand live births, also the lowest ever recorded. More deaths from automobile accidents were reported than ever before, 750 as compared with 665 for the preceding year. The tuberculosis death rate, 35.3, was the lowest that the state has ever had.

## PHILIPPINE ISLANDS

**Medical Board Appointments**—Drs. Jose M. Delgado and Cesario Santa Ana, Manila, have been appointed members of the Board of Medical Examiners of the Philippine Islands and Dr. Rufino Abriol, Manila, chairman.

## HAWAII

**Personal**—Visitors to Honolulu recently included Drs. George E. Brewer, emeritus professor of surgery, Columbia University College of Physicians and Surgeons, New York, and William A. Coventry, Duluth, Minn., past president of the Minnesota State Medical Association.

## GENERAL

**Meeting of Committee on Maternal Welfare**—The American Committee on Maternal Welfare will hold its annual meeting at the Hyde Park Hotel, Thirty-Sixth and Broadway, in Kansas City, May 13, under the presidency of Dr. Fred L. Adair, Chicago; the secretary is Dr. James R. McCord, 50 Armstrong Street, Atlanta. Reservations for luncheon may be made through Dr. LeRoy A. Calkins, the University of Kansas, Kansas City, Kan. Members and others interested are invited.

**Meeting of American Heart Association**—The twelfth annual meeting of the American Heart Association will be at the Hotel Phillips, Kansas City, May 12. Speakers will include the following physicians:

William B. Kountz, St. Louis, Studies on the Revived Human Heart.  
Louis N. Katz, David B. Witt, and Miss E. Lindner, Chicago, The Dynamic Effect of Acute Experimental Poisoning of the Heart with Diphtheria Toxin.  
Howard B. Sprague, Boston, Differential Diagnosis of Congestive Heart Failure and Constrictive Pericarditis.  
William J. Kerr and Franklin J. Underwood, San Francisco, Hemiconstriction of Vascular System Associated with Cerebral Disease.  
Irvine H. Page, New York, Anterior Nerve Root Section and Sympathetic Section in the Treatment of Hypertension.  
Wallace M. Yater, Washington, D. C., Thorotrast Arteriography in Vascular Diseases of the Extremities.

**Radium Society Meeting**—The annual meeting of the American Radium Society will be held at the Hotel Kansas City, Kansas City, Mo., May 11-12. Dr. Curtis F. Burnam, Baltimore, will deliver the Janeway Lecture at the annual banquet Monday evening, May 11, at the University Club. Dr. Douglas Quick, New York, chairman of the Janeway Lecture Committee of the society, will present the Janeway Medal to Dr. Burnam and to the previous annual lecturers, Drs. James Ewing and Francis Carter Wood, New York, and George E. Pfahler, Philadelphia. Dr. Zoe Allison Johnston, Pittsburgh, will be installed as president at this meeting. Dr. George W. Grier, Pittsburgh, is the present president and Dr. Edward H. Skinner, Kansas City, secretary.

**Health Officers' Conference**—The annual Conference of State and Territorial Health Officers with the U. S. Public Health Service will be held in Washington, D. C., April 13-14. The program will include a symposium on the control of syphilis with the following speakers: Drs. Raymond A. Vonderlehr of the public health service, Joseph Earle Moore, Baltimore, Dudley C. Smith, University, Va., Arthur J. Caslesman, Trenton, N. J., John H. Stokes, Philadelphia, and Nels A. Nelson, Boston. There will also be a symposium on industrial hygiene and the second day will be devoted to discussion of policies and procedures in connection with administration of the public health phases of the social security act. The Children's Bureau of the Department of Labor will hold a similar conference with the health officers April 15-16.

**Meeting of Proctologists**—The American Proctologic Society will hold its annual meeting at the Hotel Kansas City, Kansas City, Mo., May 11-12. There will be symposiums on "Diverticulosis and Diverticulitis," "Causes of High Rectal and Low Back Pain" and "Pilonidal Sinus." The following speakers will present formal papers:

Dr. Collier F. Martin, Philadelphia, Variety and Distribution of Gross Lesions in Lymphopathia Venerea.  
Dr. Dudley A. Smith, San Francisco, Fistula in Ano.  
Dr. Louis A. Buie, Rochester, Minn., Anterior Lymphatic Abscess.  
Dr. Louis J. Hirschman, Detroit, Drainage in Certain Anorectal Operations.  
Dr. Harry E. Bacon, Philadelphia, Pruritus Ani.  
Dr. Frederick B. Bowman, Hamilton, Ont., Injection Treatment of Prolapse of the Rectum.  
Dr. Frank H. Murray, Chester, Pa., Association of the Proctologic and Urinary Tracts.

**Bequests and Donations**—The following bequests and donations have recently been announced:

Protestant Episcopal and Frankford hospitals, Philadelphia, \$5,000 each by the will of Bertha S. Wilbraham.  
Abington Memorial Hospital, Abington, Pa., and Children's Hospital, Philadelphia, \$5,000 each by the will of Sara R. Halliwell, Philadelphia.  
Lankenau Hospital, Philadelphia, awarded \$9,250 held in trust for eighteen years from the estate of Mrs. Louis A. Scharda.  
Jewish Hospital, Philadelphia, \$5,000; Mount Sinai Hospital, Philadelphia, \$2,000; Jewish Consumptives' Home, Denver, \$2,000; Eagleville Sanatorium, Eagleville, Pa., \$1,000 by the will of Meyer Hoffman, Philadelphia.  
Germantown Hospital, Philadelphia, \$500 by the will of Mrs. Eliza Beth B. Wistar Warner.  
Montefiore and Mount Sinai Hospitals, New York, \$5,000 each by the will of the late Marco Fleishman.  
Presbyterian Hospital, Philadelphia, \$10,000 from the estate of Henry R. Mulford, a policeman, \$5,000 by the will of Clara S. Stevenor.  
The following New York hospitals received bequests in the will of the late Charles Klingenstein: Fire Vets' Hospital, Lenox Hill, Lehigh and Neurological Institute, \$1,000 each; Beth Israel, \$2,000; Montefiore, \$5,000; Mount Sinai, \$5,000.

**Low Mortality Record**—A new low mortality rate, 8.4 per thousand of population, was recorded among the 17,000,000 policyholders of the Metropolitan Life Insurance Company in 1935, according to its *Statistical Bulletin*. New low rates were registered for typhoid, tuberculosis, diarrheal conditions, chronic nephritis and puerperal diseases, burns and drowning. The rate for typhoid was 1.1 per hundred thousand, tuberculosis, 55.6 per hundred thousand, marking a reduction of 6.4 per cent from the previous low point of 59.4 of 1934. The rate for diarrheal complaints was 8.1 per hundred thousand and the rate for puerperal diseases, 8.7. Rates for deaths from accidental burns and drowning were 3.2 and 4.9, respectively. Declines were also noted for cancer, which had a rate of 95.5, diabetes, 24.2, heart disease, 157.4, suicides, 9.1, appendicitis, 11.4, and automobile accidents, 20.3. The rate for deaths from alcoholism was the lowest for any year since 1921, 2 per hundred thousand.

**Study of Suicide**—The Committee for the Study of Suicide, recently organized in New York, has outlined plans for a comprehensive study. Intramural studies of persons inclined to suicide will be made in selected hospitals for mental disease, these will include constitutional, neurologic, psychiatric and psychoanalytic investigations, with special reference to therapy and prevention. Similar studies of ambulatory cases will be made in outpatient clinics, these studies will be primarily therapeutic. Social studies will be undertaken through follow up of attempts at suicide, with investigations of social background and history and recommendation of psychiatric or psychoanalytic treatment in agencies available to the committee. Ethnologic studies consisting of investigations of suicide among primitive races are planned. Dr Henry E. Sigerist, professor of history of medicine, Johns Hopkins University of Medicine, Baltimore, and Edward Sapir, Ph.D., Sterling professor of anthropology and linguistics, Yale University, New Haven, Conn., have been made consultant members of the committee to advise in the parts of the work that touch their fields. Executive offices of the committee are at Room 1404, the Medical Arts Center, 57 West Fifty-Seventh Street, New York. Dr Gregory Zilboorg is secretary and director of research.

**Association for Study and Control of Rheumatic Diseases**—The American Association for the Study and Control of Rheumatic Diseases will meet at the Phillips Hotel, Kansas City, Mo., at 9 o'clock and again at 2 o'clock, May 11, under the presidency of Dr Russell L. Haden, Cleveland, the secretary is Dr Loring T. Swann, 372 Marlboro Street, Boston. The following physicians will present an educational program on the differential diagnosis of diseases of joints:

Russell Haden, Cleveland. Clinical grouping and diagnostic approach to the patient with joint conditions.  
Edwin P. Jordan, Chicago. Differential diagnosis of joint diseases from the standpoint of pathology.  
Ralph H. Boots, New York. The essential features in differential diagnosis of atrophic and hypertrophic arthritis.  
Joseph L. Miller, Chicago. Differential diagnosis between Strumpell Marie disease and osteoarthritis of the spine.  
Stafford L. Warren, Rochester, N. Y. Differential diagnostic points of gonorrheal arthritis.  
Frank D. Dickson, Kansas City. Differential diagnostic points of tuberculous arthritis especially tuberculous polyarthritis.  
Ralph A. Kinsella, St. Louis. Differential diagnostic points of rheumatic fever.  
Philip S. Hench, Rochester, Minn. Differential diagnostic facts about gout, distinguishing it from other joint diseases.  
Willis C. Campbell, Memphis, Tenn. Differential diagnosis of traumatic arthritis.  
Charles H. Slocumb, Rochester, Minn. Differential diagnosis of fibrositis.  
William J. Kerr, San Francisco. Differential diagnostic points of constitutional conditions mistaken for arthritis, which produce skeletal aches and pains.

**Medical Bills in Congress—Change in Status** H. R. 12098 has been reported to the House, making appropriations for the Departments of State and Justice and for the Judiciary, and for the Departments of Commerce and Labor, for the fiscal year ending June 30, 1937. For the Children's Bureau, Department of Labor, the following appropriations are proposed: For grants to enable each state to extend and improve services for promoting the health of mothers and children, \$2,820,000, for grants to states to extend and improve services for crippled children, \$2,150,000, for grants to states for the care of homeless or neglected children, \$1,200,000. **Bills Introduced** H. J. Res. 555, introduced by Representative Mapes, Michigan, proposes to create a Joint Committee on the Reorganization of the Administrative Branch of the Government. H. R. 11661, introduced by Representative Lee, Oklahoma, proposes to provide federal service medals of honor to civilian federal employees who have made outstanding contributions to the advancement of scientific knowledge or the application of its truths in a practical way for the welfare of the human race, or who have rendered conspicuous service to humanity at the

voluntary risk of life or health over and above the ordinary risks of duty. S. 4390, introduced by Senator Sheppard, Texas, proposes to provide that appointments to the Medical Administrative Corps shall be restricted to pharmacists who are graduates of recognized schools or colleges of pharmacy requiring four years of instruction for graduation, and provides that the number of such pharmacists in the corps shall not exceed sixteen.

**Society News**—At the annual meeting of the Southern Psychiatric Association in New Orleans, February 22-23, Dr George P. Sprague, Lexington, Ky., was chosen president elect, and Dr William D. Partlow, Tuscaloosa, Ala., was installed as president. Dr Charles S. Holbrook, New Orleans, was elected vice president, and Dr Newdigate M. Owensby, Atlanta, was reelected secretary. Guest speakers at the meeting included Drs John H. Musser, New Orleans, Lloyd J. Thompson, New Haven, Milus K. Bailey, Atlanta, William E. Gardner, Louisville, Arthur J. Schwenkenberg, Dallas, Texas, Frederick L. Fenn, New Orleans, and Frank R. Gomila, commissioner of public safety, New Orleans. Dr Robert B. Greenough, Boston, was elected president of the American Society for the Control of Cancer at the recent annual meeting in New York. Dr Edmund B. Wilson, New York, is vice president and Dr Frank E. Adair, New York, secretary. Dr James Ewing, New York, was named chairman of the board. The Eugenics Research Association will meet at the American Museum of Natural History, New York, June 6. Dr Fred W. Rankin, Lexington, Ky., was chosen president-elect of the Southeastern Surgical Congress at the recent session in New Orleans, and Dr Benjamin T. Beasley, Atlanta, director general of the congress, was named secretary-treasurer. The next annual meeting will be held in Louisville, Ky. Dr Ray Lyman Wilbur, Stanford University, Calif., has been chosen president of the American Social Hygiene Association, succeeding Dr Edward L. Keyes, New York, who resigned after twelve years' service. The Association for the Study of Allergy will hold its annual meeting at the Baltimore Hotel, Kansas City, Mo., May 11-12. Dr Morris Murray Peshkin, New York, is president of the association and Dr Warren T. Vaughan, Richmond, Va., secretary.

## CANADA

**University Appointments**—Dr Charles B. Weld of the department of physiology at the University of Toronto Faculty of Medicine has been appointed professor of physiology at Dalhousie University Faculty of Medicine, Halifax, N. S. He succeeds Dr Ernest W. H. Cruickshank, who resigned in December 1935. Dr Cecil Percy Martin, chief demonstrator in anatomy and university anatomist at Trinity College, Dublin University, has been appointed Robert Reford professor of anatomy at McGill University Faculty of Medicine. Dr Martin succeeds Dr Samuel E. Whitnall, who resigned in 1934 to accept the chair of anatomy at Bristol University.

**McGill Reorganizes Curriculum**—McGill University, Montreal, announces the reorganization of its medical curriculum into a course of five years including internship. The new plan, which goes into effect in September, will replace the present undergraduate course, now spread over five academic years of seven and a half months each, by a course covering four years of nine months each. The fifth year may be spent in an internship in an approved hospital or in further medical study at McGill or at another medical school approved by it. It is expected that in most cases the intern year will be chosen, but those who choose further study will have several alternatives. Among these is the opportunity for those who wish to obtain British qualifications to spend the fifth year in a British hospital school preparing for examinations by the British licensing bodies. The minimum requirement for entrance to the medical course will remain the same, three years in a college or faculty of arts and science.

**Personal**—Dr John T. Phair, Toronto, has been appointed chief medical officer of health of Ontario; he will continue to serve as director of the division of maternal and child hygiene. Dr John G. Fitzgerald, director of the School of Hygiene and of Connaught Laboratories, University of Toronto, has been appointed a member of the Permanent Commission on Biological Standardization of the Health Organization of the League of Nations. Dr Morris W. Thomas, Victoria, B. C., has been appointed executive secretary of the British Columbia Medical Council and British Columbia Medical Association. The Royal Society of Canada presented a gold medal to Dr James B. Collip, professor of biologic chemistry, McGill University Faculty of Medicine, Montreal, at a meeting in Ottawa, February 14, in recognition of his achievements in

science—Dr David S Hoig, medical superintendent of the Oshawa General Hospital, Oshawa, was guest of honor at a dinner given by the hospital trustees in January celebrating his twenty-fifth anniversary in that position and his fifty-fifth year as a practitioner in the community

## FOREIGN

**Congress on Light**—The third International Congress on Light will be held in Wiesbaden, Germany, September 1-7 under the presidency of Dr W Friedrich of the University of Berlin. Subjects for discussion will include the entire field of the biology of light, biophysics and the therapy of light. Information may be obtained from the secretary general, Dr H Schreiber, Berlin N W 7, Robert Koch Platz 1

**Convicted for Sale of Inaccurate Thermometers**—The U S Consul at Leipzig, Germany, David H Buftum, recently reported to the U S Department of Commerce that the manager of a Thuringia glass firm had been convicted of selling 3,000 inexact fever thermometers to Italy. The instruments had been rejected by examining authorities as not in compliance with regulations. Sentence was said to be four months' imprisonment. During the trial it was brought out that the defendant had been suspected in 1933 of selling nonapproved thermometers to foreign countries.

**Congress on Rheumatism**—The fifth International Congress on Rheumatism will be held in Lund, Sweden, September 3-5, and in Stockholm, September 7-8, under the presidency of Dr Sven Ingvar, Lund. Subjects for discussion will be allergy in rheumatic diseases, reading of roentgenograms in arthritis, nature of myalgia, and of the orthopedist in rheumatic diseases and housing conditions in relation to rheumatic diseases. American physicians listed on the program include Drs Ralph Pemberton, Philadelphia, Alvin F Coburn and Homer F Swift, New York, and Loring T Swann, Boston. The secretary of the congress is Prof G Kahlmeter, Birgerjarlsgatan 36, Stockholm.

**Congress on Microbiology**—The second International Congress for Microbiology will be held in London, July 25 to August 1, with headquarters at University College. The president of the executive committee is Prof John C G Ledingham and the general secretary Dr Ralph T St John Brooks, both of Lister Institute, London. All persons interested in microbiology may become members of the congress on payment of £1 sterling or \$5. Prospective members are urged to register early. A preliminary program may be obtained from the general secretary, whose address is Lister Institute, Chelsea Bridge Road, London, S W 1. Dr Karl Landsteiner, New York, is president of the American committee and Malcolm H Soule, Sc D, University of Michigan, Ann Arbor, secretary.

## Deaths in Other Countries

Arnold Netter, formerly professor of medicine at the University of Paris and the University of Strasbourg, died in Paris, March 1, aged 81.—Sir Charles Ballance, British surgeon, author of works on surgery of the brain, died in London in February, aged 79.

## Government Services

### U S Public Health Service

Drs Edwin H Carnes and Franklin J Halpin have been promoted and commissioned as surgeons in the regular corps of the public health service, and Drs Gregory J Van Beeck, Edward C Ernst and Peter J Gorman, as senior surgeons.

### Orthopedic Mechanic Wanted for Canal Service

A vacancy exists in the position of orthopedic mechanic in the Panama Canal service on the Isthmus. Applicants must be American citizens not more than 45 years old, in good health and physically sound. The duties of the position are to perform work of journeyman grade in mechanical orthopedics, to supervise one or two orthopedic mechanics helpers and to perform related work as assigned. Minimum qualifications include common school education, at least three years successful experience, working knowledge of standard practices of the trade, ability to perform difficult orthopedic work, skill in use of tools and equipment, ability to work from rough sketches and oral instructions, manual dexterity and ingenuity. Application blanks may be obtained from the Chief of Office, The Panama Canal, Washington, D C.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 7, 1936

### The Problem of Eugenics

Delivering the annual Galton lecture to the Eugenics Society, Mr Julian Huxley urged that a new outlook on the scope and method of eugenics was needed. Apart from a few immediate palliative measures, such as sterilization of certain types of defectives and reduction of the differential birth rate of different classes, the main task of eugenics should be the study of the existing social system with a view to transforming it into one favorable to later measures of selective breeding. Social environment should be taken into account to a much greater extent by eugenicists. Its effects were so powerful that they easily masked hereditary effects. For instance, the average stature, physique and intelligence of the lower economic strata in Britain were lower than those of the upper. This had often been put down by eugenicists to innate inferiority. But until they had done something to equalize environment between the classes there was no scientific proof. Indeed it was practically certain that much of the difference was due to environment. The same applied with even greater force to differences in intelligence and achievement between races and peoples at different cultural levels.

Eugenicists had assumed that qualities making for success in the existing social system were eugenically desirable. This was largely mere unconscious bias. The time had now come to look at the matter on a broader basis. One way was to plan measures suited to the present social environment. Its economic structure implied that society should breed for docility in the many and for initiative and brains in the few. Its nationalist structure implied that it must consider mere quantity of population as against quality more seriously than if the risks of war and the need for military man power were reduced. Prospects of eugenic advance were thus, at best, extremely limited. Or it could plan for some remote ideal type of society. If so, it must face the fact that for a long time to come many of the genetically best types in intelligence and sensitiveness would be social misfits.

The course which scientifically and practically was the best was to attempt to transform both environment and inheritance more or less simultaneously. The equalization of social environment for different classes by upward leveling must be encouraged, for only thus could the innately superior and inferior types be picked out with certainty. Internationalism must be encouraged, otherwise there would be an obsession of the need of quantity as against quality. Society above all must avoid being dysgenic. As R A Fisher had shown, factors at present making for rise in the social scale tended to become coupled with those making for low fertility. An attempt must be made to achieve a society in which the qualities making for success were of greater value for the evolutionary progress of man than in the present system. Cooperative and altruistic tendencies and those conducive toward greater awareness and sensitivity now usually handicapped a man. They should be not only social assets but eugenic aims.

One serious danger existed. If there was one thing which modern eugenics had demonstrated it was that unfavorable mutations were much more common than favorable—that the hereditary constitution had a tendency to debase itself. In wild species this tendency was kept in check and the opposite, though weaker, tendency encouraged by natural selection, in domesticated species by artificial selection. In civilized communities the tendency to degeneration was not being checked. If nothing was done, the innate qualities of our species would slowly deteriorate by the automatic accumulation of harmful

mutations. This would occur even if civilization did not collapse through war. Active selection in the opposite direction was the only remedy. But with our present type of social system nothing but palliative tinkering was possible. A change of moral outlook and social system that would encourage eugenic reproduction was needed.

#### Research with Regard to Malarial Mosquitoes

Mr H. S. Leeson and Mr J. D. Gillett, members of the staff of the Entomological Department on the London School of Hygiene and Tropical Medicine, have left for southern Rhodesia to continue an investigation begun by the former into the life history of malarial mosquitoes. The investigation will cover the whole of Central Africa from southern Rhodesia to the Sudan. The aim is to scrutinize the two mosquitoes chiefly responsible for the carrying of malaria, to see whether they are everywhere identical and are not subdivided. Studies in Europe have shown the importance in the prevention of malaria of examining with microscopic care insects which appeared to be a simple species. They have shown that there are no fewer than six races of *Anopheles maculipennis*, that their breeding places and habits are different, and that some like brackish water, some fresh water, some warm water and some cold water and keep to the north of Europe. Some sleep at peace with all mankind during the winter, either in cold attics or in cattle sheds. Others are restive, haunt the homes of men, continue to feed during the winter and are responsible for the spread of malaria in several parts of Europe, particularly the Netherlands. In Asia similar knowledge has led to great advances in the prevention of malaria. For example, if a dangerous mosquito liked sunshine it was sometimes possible to blot it out merely by growing a hedge or jungle over its breeding place and so excluding the sunlight. In other places minute chemical changes in the water had driven out dangerous species of mosquito and freed large populations from malaria, from which they had suffered for years. The research work in Africa aims at close cooperation with agriculture and forestry. At present water remains in swamps after heavy rains, and those become very malarial. It is believed that many of these swamps could be converted from dangerous areas into reservoirs, which would assist the natives to tide over the dry season and to grow crops never grown before.

#### PARIS

(From Our Regular Correspondent)

March 15, 1936

#### Clinical Application of Staphylococcus Anatoxin

The question as to whether staphylococcus anatoxin can be employed in certain forms of infection due to staphylococci is being actively debated here. The anatoxin is prepared as suggested by Prof. G. Ramon of the Pasteur Institute by the simultaneous action of a minute amount of solution of formaldehyde and a moderate degree of heat, on a bouillon culture of staphylococci previously filtered so that the filtrate contains no living organism.

An important paper by Professor Ramon and his co-workers on the use of the anatoxin, which appeared in the *Presse medicale*, February 1, advocates the injection of the anatoxin in such surface lesions due to staphylococci as furuncles, sycoes and acne. The details of the use of the anatoxin are given in this paper. The local reactions are slight, and general reactions were only febrile and never more than of twenty-four hours' duration. Two hundred cases of furunculosis were observed over a period sufficiently long to justify some conclusions. Of the 200 cases, 131 have either been cured or greatly improved. In only seven of the 131 were recurrences noted. The results of the treatment of sycoes, eczema, axillary adenitis, paronychia and acne have been equally satisfactory. In all about 500 patients have received the injections, 300 at the

Pasteur Institute and 200 by physicians throughout France, all of whom have warmly endorsed this new therapeutic method.

In a second paper (*Presse medicale* of Feb. 19, 1936) Ramon and his co-workers take up the question of the antistaphylococcal immunity produced by the specific anatoxin in patients suffering from staphylococcal infections. The anatoxin results in the formation of a specific antitoxin, which must attain a certain level in the blood in order to combat the staphylococcal infection. In the second paper the indications, injections to be given as preliminary tests of hypersensibility and the doses for treatment purposes are cited in detail.

That Ramon's warning to test the sensitivity of the patient before beginning the treatment was timely is well shown by a case reported by Duvoir and his colleagues before the *Societe medicale des hopitaux* of Paris, February 28. A woman, who was given a first injection of 0.5 cc of the anatoxin for an axillary adenitis December 13 in the outpatient department of the Hôpital St. Louis, was one of a number who had been injected the same day, none of whom reported any serious reaction. Toward evening the patient had a severe chill followed by high temperature. On admission to Duvoir's service the next day, in addition to the marked febrile reaction there were all the symptoms and signs of a cardiovascular collapse. She died on the following day (forty-eight hours after being given the anatoxin injection). The necropsy revealed only a gross hemorrhage in the right and a microscopic hemorrhage in the left adrenal gland. It appears as though an extreme degree of intolerance toward the staphylococcus anatoxin existed in this patient.

In the discussion of Duvoir's case, Debre did not believe that death was due to a fault in the technique of preparation of the anatoxin, the result of which would be that the patient had received a large dose of staphylococcus toxin, because none of the other patients who had received the anatoxin on the same day as the patient had noted any ill effects. The case teaches that one should always test the sensitivity of the patient by injecting 0.1 cc of the anatoxin and observe the reaction following such a preliminary injection.

At the same meeting, two papers were read by Tzanck and his co-workers, one on the results, accidents and dosage of the anatoxin in skin and other staphylococcal infections and the other on a comparison between the antitoxin content of the blood serum and the therapeutic results. Of sixty-two patients with various infections of the skin and other superficial structures treated with the anatoxin, eighteen were markedly improved, thirty-five improved, three not improved and six are still being treated or have not returned. The most gratifying results were obtained in furunculosis and dermatitis of pyogenic origin. Axillary adenitis was resistant, in sycoes the result was good in one, but in three others the treatment was a failure. Reactions were infrequent and, when observed, only slight.

It is advisable before beginning the treatment to try an intradermal injection and note whether there is any reaction.

In his second paper, Tzanck stated that there was no relation between the antitoxin content of the blood serum and the action of the anatoxin. The serum may contain a high percentage of antitoxin and yet recurrence take place. On the other hand, a cure may follow the first injection and yet the blood serum contain very little antitoxin.

At the January 27 meeting of the Academy of Surgery, Sauve reported twenty-five cases treated with the Ramon anatoxin. As a prophylactic immunization measure, i. e., vaccination 0.5, 1 and 1.5 cc were injected at eight day intervals. In this group there were six successful results in cases presenting the sequelae of a septicemia. In the second group, in which anatoxin was employed as a therapeutic agent, there was one brilliant result in two cases of severe sepsis and one death. In four cases of carbuncle there was marked improvement in all.



In the remaining nineteen cases the results were not satisfactory. Sauve is of the opinion that the anatoxin is of greater value as a prophylactic than as a curative measure.

At the same meeting, Soupault and Bernardini reported a case in which they attributed the favorable outcome of a severe staphylococcal sepsis to the use of the anatoxin but which would appear to be the result of removal of the focus of infection (osteomyelitis of the ankle bone) by amputation of the leg. In a man, aged 48, there was a sudden lighting up of an old bone focus followed by symptoms of septicemia. Blood culture revealed the presence of *Staphylococcus aureus*. There was no amelioration following two injections of anatoxin at eight day intervals. After a third injection and an amputation on the twentieth day, the septicemia disappeared rapidly.

Capelle added two personal cases: one of staphylococcal osteomyelitis of the femur and the other an osteo-arthritis of the wrist with metastatic arthritis of the knee and the ankle. Both patients recovered rapidly following the use of the anatoxin.

### The "Silent" Periods of Diabetes

In the Dec 5, 1935, issue of *Marseille medical* Jouve-Balmelle directs attention to certain intervals in the course of diabetes in which all of the classic symptoms, even the glycosuria, either become very mild or disappear completely. A single examination of the urine does not suffice in order to recognize a diabetes or to determine the gravity of the individual case, because of the great variations in the degree of glycosuria. Of 192 typical cases followed over a long interval, forty six are of especial interest owing to the fact that despite diet and treatment, the glycosuria was constant. The same was true to a greater or lesser extent of the clinical symptoms.

In other of the 146 cases, both the clinical signs and the glycosuria disappeared completely at times during a period of observation of several years. Even though a more liberal diet was allowed, neither the clinical signs nor glycosuria recurred during these "silent" periods. Glycosuria is of variable duration, so that an exacerbation of the most severe type (acidosis, acute tuberculosis) may appear suddenly without apparent cause. The prognosis of a case of diabetes should not be based on the degree of sugar content of the blood or urine, because these vary from day to day. One cannot state that a case of diabetes is benign just because a single examination of the blood and urine show a slight elevation.

Even in the "silent" period the diet should be strictly adhered to.

### BERLIN

(From Our Regular Correspondent)

Feb 15, 1936

### Convention of Nature Cure Physicians

In May 1935 the merger of various groups into a united "National Organization for a new German Medicine" (Reichsarbeitsgemeinschaft für eine neue deutsche Heilkunde) (*THE JOURNAL* Sept 7, 1935, p 811) took place. Among the groups which merged at that time were homeopathic and regular physicians, biochemists, nature cure physicians, kneippists, balneologists and psychotherapists. As the national fuhrer of medicine expressed it on that occasion this united organization has undertaken the task of bridging the gaps which separate the various systems and of synthesizing the tenets of the newer schools with those of the old. The Reichsarbeitsgemeinschaft held its first district group convention in Berlin (Jan 17 to 19) in conjunction with the third national convention of the Reichsverband der Naturärzte (National League of Nature Cure Physicians). This convention provided an interesting insight into the present state of the movement as well as many sidelights on it. The director of the nature cure group said at the opening of the meeting that now, since the representatives of all the many schools of biologic therapeutics have formed a

united organization, it is no longer a case of one medical group fighting another but of a united struggle to improve the nation's health. All forces are now combined in the campaign for a new German medicine. Our work must go on to completion, our goal must be the production of a healthier German race. The first report was given by Professor Dr Kotschau, director of the polyclinic of biologic medicine of the University of Jena and also director of the Reichsarbeitsgemeinschaft. His subject was "Methods and Aims of the Biologic Movement for the Foundation of a New German Medicine." Since an end of their theoretical separation had been publicly recognized, nature cure physicians and physicians of the old school must undertake together the unbiased examination of all therapeutic measures. The paracelsian method can no longer be regarded as fundamental, the infinitude of nature must not be bound to a narrow rational concept. The science of Paracelsus has tended to lead away from nature, the slogan of the present should be "Back to Nature." The prominence of biologic ideas in the weltanschauung of the new state has done much to influence and further nature science. The creation of a new school of German medicine presupposes a changed concept of the physician. With the new German medicine a new type of doctor comes into being.

Likewise interesting from many points of view were the remarks of Dr Finke, secretary of the National League of Nature Cure Physicians. He pointed out that for the past year several groups and societies of medical men (among others the Hydrotherapeutic Institute of the University of Berlin and the Nature Cure Method Clinic at Jena, the latter sternly opposed by the faculty of medicine) have been occupying themselves with questions of physical dietetics. "With the dawn of a new era, the guiding hand of government has pursued a course wholly in accord with the totalitarian philosophy of nature cure physicians." The world of the nature physicians corresponds precisely with that of the new political concept (staatsauffassung). Dr Finke then touched on various topics of general interest. The designation "practicing physician" (praktischer Arzt) must be avoided, he said because enough is implied by the term 'physician.' It is to be hoped that the legal provisions for the licensing of specialists will be repealed. This encouragement of specialization is opposed to the concept of the new German physician. The reason for this can be stated in a word: a nature cure physician treats all mankind, accordingly, he may think of himself as an ear, eye or skin specialist at one and the same time (*THE JOURNAL*, July 27, 1935 p 294). The nature cure physician handles surgical cases in his own way and in so doing may recognize no limit to his professional jurisdiction. At the same time he acknowledges the importance of surgery as a necessary technic within the framework of medicine. The world view attitude must be kept within bounds. This sketch of a so to speak responsible 'nature physician' tells the reader enough, further comment is unnecessary.

Dr Brauchle, director of the nature medicine clinic of Rudolph Hess Hospital in Dresden, compared nature medicine and mechanistic methods. The mechanist, he said is the man who disregards nature, who considers the removal of a tumor, for example as sufficient whose philosophy is "as many methods as there are diseases." The opposite biologic concept draws on all cosmic elements that nature has placed at the disposal of man. It repudiates the artificial synthetic method. Disease is the sum total of all defense mechanisms. Nature medicine accordingly, instead of fighting bacteria attempts to strengthen the defense mechanisms of the physical entity. One can speak with Paracelsus of a physician within man who strives for a maintenance of equilibrium. Whereas the old school of medicine masters only externalities, the nature physicians seek to liberate the inner forces of defense. Disease and pain may

both appear as results of a disturbed equilibrium, yet there may conceivably be a sharp distinction between them. Nature cure science may cure the disease but not the sufferings. Disease is a defense activity. Even if the organism were not diseased, it might perish from pain. Suffering is the sum of all weaknesses. Nature medicine requires, as Dr Brauchle emphasized, that together with treatment of disease must go instruction in a better conformity of life to nature. The hospitals must be expanded into educational centers for hygienic living.

"Coordination of Popular Medicine with the Medical Profession" was discussed by G Wegener, director of the national federation for hygienic ways of life in conformity with nature (Reichsarbeitsgemeinschaft der Verbände für naturgemasse Lebens- und Heilweise). He assailed mysticism and sectarianism. He spoke of the existing gulf between the medical profession and the public. This he believed should be bridged as soon as possible through the extension of nature cure methods, the medicine of future ages.

A series of reports gave an insight into various problems of the nature cure method, among others, its introduction into hospitals. The value of the kneippian nature cure method in diseases of childhood was stressed. The biochemists of today are harvesting the fruits of Kneipp's painstaking pioneer labors. Further papers dealt with nature cure science and dentistry, rheumatism of the soft parts and myogeloses, herb medicine, active articular rheumatism and the physician as an educator. The physician must instruct his patients in nature cure matters in order that they may in turn instruct others and live lives in harmony with nature, independent of the physician. Greater emphasis must be placed on the diet. What we eat and how we eat are equally important.

Dr Bastamer of Berlin presented an explanation of homeopathy which further demonstrated the willingness on the part of the various groups to synthesize their differences. The speaker, taking exception to some of Dr Brauchle's remarks, stated that in his opinion not every fever possesses a therapeutic effect and not every patient is able, *simul generis* to produce all antitoxins. Neither is it possible to treat every phenomenon of disease. Homeopathy understands the human being as a complex of psychophysical idiosyncrasies and assists the will to a self healing of the body. "Every remedy cures that which it produces." Thus Bastamer defined the homeopathic method. It was brought out in a discussion of medicinal plants that a study of phytogeography was an absolute necessity and that herb medicine would receive a greater impetus from it.

The paper read by Prof Dr J H Schultz of Berlin on "Methods and Aims in Psychiatry" was received with great enthusiasm. Dr Schultz posed the decisive question: To what degree does the psychic influence physical happenings? An approach to the solution of this problem must be by way of the hypnotic method. In hypnosis, changes are effected in organic functioning and the normal state is again restored. Numerous experiments lead to the conclusion that all functional occurrences can be changed by purely psychic influence. "Implications of psychic influence are as ample as life itself." Psychotherapeutic methods that lead to self healing often require long periods of time to elucidate the nature of a disorder the cause of which lies deep in the subconscious.

In the closing address of the meeting, Dr Kluth of Kassel contrasted the nature cure method with a menaced specialty of the old school, surgery. The knife will always be indispensable to medicine, but surgery too can profit from nature cure science. Psychotherapeutic measures are valuable before an operation. In postoperative treatment the nature cure method may be of importance when the detoxication of the body must be aided by fanning the breath and the transpiration. Thromboses and emboli may thus be avoided. On this subject each

patient must be made to understand that health comes from healthy heredity and from living in conformity with nature.

It is a significant fact that Dr Wagner, the reichsarbeitsführer, has accepted all the claims of the new movement. In order that all physicians may become better acquainted with therapeutic methods of nature cure medicine, an increase in the number of available sick wards wherein these methods may be practiced is indicated. As a sign of cooperative effort it is to be noted that the 1936 convention of the German Society for Internal Medicine will be held at Wiesbaden in conjunction with the convention of the reichsarbeitsgemeinschaft für neue German medicine.

In the proceedings, several professors of the Berlin Medical Faculty also participated, among them the surgeon Professor Magnus and the gynecologist Professor Wagner.

## VIENNA

(From Our Regular Correspondent)

Feb 22, 1936

### Preservation of Menstruation After Hysterectomy

At a recent meeting of the Vienna Physicians' Society, Professors Kraul and O Frankl presented five female patients in whom it had been possible by plastic implantation of uterine mucosa to maintain the menses following supravaginal hysterectomies performed on account of myomas. The oldest case dates back four and one-half years. Heretofore this operation, like total extirpation, was always followed by permanent amenorrhea. All discussion of the physiologic need for uterine bleeding aside, it is a known fact that the menses have a great psychologic importance. Although the majority of women without a uterus feel well most of the time so long as the ovaries are functioning normally, others exhibit, together with postoperative amenorrhea, serious psychic disturbance and an inferiority complex. The idea that a monthly discharge constitutes a *sine qua non* of genuine health is with the latter deeply rooted despite assurances that on the ovaries rather than the uterus depends the presence or lack of complete femininity. It is likewise true that myomas are often successfully enucleated and the uterus left intact or, by extremely high supravaginal amputation, the menstruating uterine mucosa is preserved. As Frankl was able to demonstrate, the objective may be attained with the use of only a small implant. Many surgeons have endeavored in postoperative amenorrhea to implant endometrium in the fundus of the vagina or in the cervical stump. However, these implants in most cases soon underwent resorption. Now excellent results have been obtained by a new method. This consists of the implantation, after supravaginal amputation at the normal height, of a pedunculated flap of uterine mucosa (if possible from the posterior wall) in the freshened cervical canal. This flap usually heals over satisfactorily. From four to five weeks later the patient experiences a feeble beginning of menstruation which later becomes about normal. This modification of the customary myomectomy is not indicated in all cases. It does not increase the danger of the operation, however, and gives rise to no intrinsic complications. Should an attempt at plastic implantation of endometrium tissue fail, the patient has certainly suffered no injury; if it succeeds, the effect on morale is considerable. There are two methods that interference in cases of (bleeding) myomas may follow: the radical method of total extirpation, and the conservative method based on preservation of the uterus at any cost. Higher morbidity and mortality must be expected when the latter method is employed. Conservative surgeons are perhaps justified in the opinion that menstruation in addition to its other functions acts as a drainage valve for the supposed "menotoxins" and for premenstrual hyperemia of the pelvic organs. At all events, the Kraul-Frankl transplantation may

cause even the conservatives to decide more readily on a method of myomectomy which, although more radical, shows more consideration for the patient. In the discussion following the demonstration, the gynecologist Professor Adler said he welcomed the new procedure. Opinion was almost entirely favorable to a method of transplantation presenting such slight technical difficulties and of such psychologic benefit to the patient.

#### The Sense of Direction in Drivers

Official investigations of traffic accidents have repeatedly shown that drivers may hear the warning signal of a second vehicle well enough and yet turn out in the wrong direction and later maintain that the signal came from the opposite side. In most of the countries where drivers are submitted to rigorous examinations it is required not only that the candidates be able to hear well but that they be able to distinguish the direction from which a given signal comes. Preliminary tests showed to every one's amazement that only 50 per cent of the candidates having normal hearing were able on a crowded square to state from which direction a signal came. The question then arose: Is deficient "direction hearing" in human beings due to a loss of mobility of the auditory membrane over a span of thousands of years or can the deficiency be explained in terms of time differentiation and sound differentiation between hearing in the right and left ears? Subsequent tests demonstrated that the fault lay not in the sensory organ but in the local urban conditions. A sound coming from behind and reflected by a house on the right will pierce the right ear more forcefully, so that the driver believes the sound to come from that direction. When the tests were made on a wide treeless flying field, the number of errors was reduced to 7 per cent. On a completely reflex-free plain the number sank to zero. The reason why so many persons of normal hearing made such a poor showing in the examinations is simply and solely the reflection of sound in a big city. The city is to the ear, as it were, an acoustic maze of many sound-reflex surfaces. The examination of drivers in "direction hearing" is therefore without practical value.

#### High Mortality Among Viennese Physicians

The figures for recent years reveal that the death rate among physicians in Vienna is higher than the mortality rate of the entire population. During the last five years 13 per cent of the inhabitants died on the average each year (about 24,000 of 1,866,000). At the same time the number of old persons (over the age of 65) constantly increased. The membership of the Viennese medical profession increased during this quinquennium from 3,846 to 4,042. The mortality for the profession, however, amounted to more than 16 per cent and in recent months two or three eminent physicians passed away almost every week while in full bloom in their professional activities (between the ages of 55 and 65). No exhaustion of the supply has been perceptible, and the newer generation seems to be well enough represented numerically. Yet the formerly well established increase in the duration of life has come to a standstill, since the number of physicians over the age of 70 does not noticeably increase. Doctors engaged in academic activities that is, those who are members of the teaching staff of the medical school, seem to pass away more prematurely than the others. Three prominent physicians have died recently: one after the other, Docent Dr. Breuer, the internist and chief physician of the Rothschild Jewish Hospital, at the age of 67; Professor Dr. Karplus, aged 70, a neurologist; and Dr. Delme, head physician of the Vienna Municipal Children's Hospital, aged 55. All three men were distinguished teachers and representative research workers, all three were exhausted by the twofold duties of teacher and practitioner.

## Marriages

FRANCIS HENRY MCGOVERN to Miss Rebecca Cash Lee, both of Milwaukee, at Ivy Depot, Va., February 7.

RUTH J. FRANK, Spartanburg, S. C., to William Leonard Pugh, Ph.D., at Wooster, Ohio, Dec. 23, 1935.

STEPHEN MATTHEW LIANA Linden, N. J., to Miss Leona Bernice Budryk of Paterson, Nov. 28, 1935.

WILLIAM TURNER RAY, Charlotte, N. C., to Miss Harriett Mangum of Wake Forest, February 11.

DAVE B. RUSKIN, Fairgrove, Mich., to Miss Florence Rutenburg of Dayton, Ohio, January 26.

CLARENCE VEARN PARTRIDGE to Miss Edith Anne Pritchard, both of Mobile, Ala., January 21.

EDWIN P. PRESTON, Miami Beach, Fla., to Miss Josephine Montanus of Coral Gables recently.

## Deaths

Albert Moore Barrett, professor of psychiatry, University of Michigan Medical School, Ann Arbor, and director of the State Psychopathic Hospital, Ann Arbor, died, April 2, of coronary occlusion, aged 64. Dr. Barrett was born in Austin, Ill., July 15, 1871. He was educated at the State University of Iowa, Iowa City, where he received his A.B. degree in 1893 and his M.D. in 1895, and studied at the University of Heidelberg, Germany, from 1901 to 1902. In 1895 he became pathologist at the Independence (Iowa) State Hospital for Insane and served in that capacity until 1901. He was assistant physician to the Worcester (Mass.) Insane Hospital from 1897 to 1898 and pathologist to the Danvers (Mass.) State Hospital from 1901 to 1905. He was assistant in neuropathology at Harvard during 1905 and 1906. In 1906 he was called to the University of Michigan to organize the first university hospital and clinic in America for mental diseases. In the same year he was appointed associate professor of neuropathology at the university and medical director of the psychopathic hospital. He was professor of psychiatry and nervous diseases at Michigan from 1907 to 1920 and since 1920 had been professor of psychiatry. He was a past president of the American Psychiatric Association and the American Psychopathological Association and a member of the American Neurological Association, Association for Research in Nervous and Mental Disease and the Central Neuropsychiatric Association. Dr. Barrett was also a member of the Medical Council of the U. S. Veterans Bureau.

Ernst August Sommer, Portland, Ore., Willamette University Medical Department, Salem, 1890, in 1929 elected vice president of the American Medical Association, member and past president of the Oregon State Medical Society and the Pacific Coast Surgical Association, member of the North Pacific Surgical Association, a founder, a governor and past regent of the American College of Surgeons, emeritus professor of surgery, University of Oregon Medical School, formerly mayor of Oregon City, at one time member of the school board of Portland, served during the World War, chief surgeon to the Pacific Northwest Public Service Company, aged 66, on the staff of St. Vincent's Hospital, where he died, March 15.

Frank Stuart Mathews, New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893, clinical professor of surgery at his alma mater, member of the American Surgical Association, fellow of the American College of Surgeons at various times on the staffs of the Home for Incurables, Hospital for the Ruptured and Crippled, St. Luke's Hospital and St. Mary's Free Hospital for Children, New York, Lawrence Hospital, Bronxville and the Mountainside Hospital, Montclair, N. J., aged 66, died, February 17, of heart disease.

Nathan Edmondson Berry Iglehart, Baltimore, University of Maryland School of Medicine, Baltimore, 1889, assistant in surgery, Johns Hopkins University School of Medicine, 1901-1909 and instructor, 1909-1918, on the staffs of the Johns Hopkins Hospital, Church Home and Infirmary, Woman's Hospital of Maryland, Union Memorial Hospital and the Bon Secours Hospital, aged 68, died February 1, of coronary thrombosis.

Benjamin Franklin Largent, McKinney, Texas, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, member of the State Medical Association of Texas, past president and secretary of the Collin

County Medical Society, fellow of the American College of Surgeons, served during the World War, surgeon to the McKinney City Hospital, aged 49, died, January 17, in a hospital at Dallas, of cerebral hemorrhage

**Horace Packard**, Boston, Boston University School of Medicine, 1880, member of the Massachusetts Medical Society, professor emeritus of surgery at his alma mater, a founder, formerly vice president and fellow of the American College of Surgeons, consulting surgeon to the Massachusetts Memorial Hospitals, member of the national committee of medical defense during the World War, aged 80, died, January 24, in Stoughton, Mass

**Hugo Otto Pantzer**, Indianapolis, Medical College of Indiana, Indianapolis, 1881, past president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, fellow of the American College of Surgeons, formerly clinical professor of gynecology, Indiana University School of Medicine, aged 77, died, February 14, in St Vincent's Hospital, of complications following a hip injury suffered in a fall

**Charles L Minor** ♂ Springfield, Ohio, Miami Medical College, Cincinnati, 1897, member of the American Academy of Ophthalmology, fellow of the American College of Surgeons, on the staffs of the Rickly Memorial Hospital and the Springfield City Hospital, aged 60, died suddenly, February 18

**George Alexander McCracken**, Woodville, Pa, Western Pennsylvania Medical College, Pittsburgh, 1905, member of the Medical Society of the State of Pennsylvania, medical superintendent of the Allegheny County Home and Hospital, aged 61, died, January 24, of carcinoma of the parotid gland

**Frederick Charles Kress** ♂ Johnstown, Pa, Jefferson Medical College of Philadelphia, 1897, fellow of the American College of Surgeons, formerly president of the board of health of Lilly, aged 63, on the staff of the Mercy Hospital, where he died, January 25, of a ruptured appendix and peritonitis

**Gustaf Richard Egeland** ♂ Sturgeon Bay, Wis, Northwestern University Medical School, Chicago, 1903, fellow of the American College of Surgeons, owner and medical superintendent of a hospital bearing his name, aged 59, died, January 30, in San Marino, Calif, of angina pectoris

**Walter Eugene Rahte** ♂ New York, University of Pennsylvania Department of Medicine, Philadelphia, 1901, formerly on the staff of the West Side Hospital and Dispensary, aged 59, died, January 29, in Milwaukee, of coronary thrombosis and chronic myocarditis

**John Vincent Ward Jr**, Weehawken, N J, Columbia University College of Physicians and Surgeons, New York 1924, served during the World War, on the staff of St Mary's Hospital, Hoboken, aged 37, died, February 26, of carbon monoxide poisoning

**William Otey McCabe** ♂ Thornton, Va, Baltimore Medical College, 1892, University College of Medicine, Richmond Va, 1894, past president and secretary of the Bedford County Medical Society, aged 65, died, January 18, of coronary occlusion

**Henry Stephen Fletcher**, Chicago, Dearborn Medical College, Chicago, 1907, formerly on the staff of the Welles Park Hospital, aged 63, died, January 20, in the Augustana Hospital, of ascending urinary infection and prostatic hypertrophy

**Thomas Conner Gorman** ♂ Cedar Rapids, Iowa, Rush Medical College, Chicago 1897, on the visiting staff of the Mercy Hospital and on the staff of the St Luke's Methodist Hospital, aged 61, died, January 24, of cerebral hemorrhage

**Howard Kemp Eaman** ♂ Bradford, Pa, Maryland Medical College Baltimore, 1910, past president of the McKean County Medical Society, aged 50, on the staff of the Bradford Hospital, where he died suddenly, January 22, of heart disease

**Joseph Cabell Jett**, Spring Dale, W Va, University of the South Medical Department, Sewanee, Tenn 1904, member of the West Virginia State Medical Association, aged 56, died, January 19, in a hospital at Baltimore

**Harry Moore Felton**, Pittsburgh, University of Maryland School of Medicine, Baltimore, 1905, member of the Medical Society of the State of Pennsylvania, aged 53, died, January 23, of chronic myocarditis and coronary occlusion

**John Joseph Greer**, Knoxville, Tenn, Vanderbilt University School of Medicine Nashville 1917, member of the Tennessee State Medical Association, served during the World War, aged 43, died, January 12, of pneumonia

**Hugh E Cureton**, Conway, Ark, Arkansas Industrial University Medical Department, Little Rock, 1895, member of the Arkansas Medical Society, also a pharmacist, aged 68, died suddenly, February 14, of angina pectoris

**George I Inlow**, Manila, Ind, Kentucky School of Medicine, Louisville, 1897, member of the Indiana State Medical Association, for many years coroner of Shelby County, aged 61, died, January 22, of parkinsonism

**John William Hess**, Adell, Wis, Wisconsin College of Physicians and Surgeons, Milwaukee, 1910, on the staff of the Sheboygan Memorial Hospital, aged 54, died in Sheboygan, January 18, of coronary sclerosis

**Patrick P Boggan**, Forrest City, Ark, Louisville (Ky) Medical College, 1874, member of the Arkansas Medical Society, health officer of Forrest City, aged 83, died, February 3, of cerebral hemorrhage

**James Franklin Gullic**, Koshkonong, Mo, Memphis (Tenn) Hospital Medical College, 1903, member of the Missouri State Medical Association, aged 56, died, January 17, of carcinoma of the breast

**Oley Alphonso Britell** ♂ Whitefish, Mont, Rush Medical College, Chicago, 1903, served during the World War, aged 57, died, February 7, of pneumonia and coronary occlusion

**Grover Augustus Stem**, Baltimore, University of Maryland School of Medicine, Baltimore, 1912, aged 46, died, February 5, in the Maryland General Hospital, of pneumonia

**J Willard Parrish**, Shelbyville, Ind, Medical College of Indiana, Indianapolis, 1896, for many years county health officer, aged 76, died, January 25, of myocarditis

**Donald Wright Broadbent**, Philadelphia, Temple University School of Medicine, Philadelphia, 1925, aged 39, died suddenly, January 24, of coronary thrombosis

**Francis Vaughan Fowlkes** ♂ Richmond, Va, University of Maryland School of Medicine, Baltimore, 1887, aged 68, died, January 20, of cerebral hemorrhage

**George Peter Michel** ♂ Buffalo, University of Buffalo School of Medicine, 1912, aged 56, died, Dec 17, 1935, in Cleveland, of rheumatic heart disease

**James W Sams**, Crestwood, Ky, Hospital College of Medicine, Louisville, 1901, aged 58, died, January 13, in Peoria, Ill, of an accidental gunshot wound

**Robert Clement Moakley**, Lexington, Mass, College of Physicians and Surgeons, Boston, 1915, aged 58, died, January 30, of carcinoma of the pharynx

**Lester Parker Hall**, Dixon, Calif, Cooper Medical College, San Francisco, 1897, aged 60, died, January 26, of pneumonia and cerebral hemorrhage

**Joanna Gaston Leary**, Elizabeth, N J, New York Medical College and Hospital for Women, 1887, aged 84, died, January 25, of chronic myocarditis

**Ada A Fowler**, Marion, Ind, Hahnemann Medical College and Hospital, Chicago, 1889, aged 77, died, January 23, of carcinoma of the breast

**Marion Crawford Aker**, Ritzville, Wash, Indiana University School of Medicine, Indianapolis, 1934, aged 30, died, January 20, of pneumonia

**Henry Andrew Benz**, Northbrook, Ill, Rush Medical College, Chicago, 1888, aged 72, died, Dec 7, 1935, in Chicago, of prostatic hypertrophy

**William D Rogers**, Coalmont, Tenn, Atlanta Medical College 1894, aged 68, died, January 20, in a hospital at Chattanooga, of pneumonia

**David Dee Goldberg**, St Louis, St Louis College of Physicians and Surgeons, 1899, aged 63, died suddenly, January 23, of angina pectoris

**John Joseph Spottiswood**, Mill Valley, Calif, Cooper Medical College, San Francisco, 1894, aged 64, died, January 14, of portal cirrhosis

**William Homer Sitton** ♂ Osceola, Mo, Eclectic Medical University, Kansas City, 1903, aged 54, died, January 23, of acute nephritis

**Clarence M McConkey**, Otis, Kan, University Medical College of Kansas City, Mo, 1905, aged 63, died, January 3, of influenza

**Frank Ramey**, East Point, Ky, Louisville Medical College, 1892, aged 69, died, January 21, of cerebral hemorrhage

**John William Fox**, Edinburg, Pa, Maryland Medical College, Baltimore, 1911, aged 57, died, February 8, of pneumonia

**Omer M Willis**, Metropolis, Ill, St Louis College of Physicians and Surgeons, 1898, aged 59, died, January 8

**L Otley Pindar**, Versailles, Ky, Medical College of Ohio Cincinnati, 1891, aged 65, died, January 2

**Mark O Pardee**, Franklin, Ohio, Cleveland Medical College 1895, aged 67, died, January 15

## Correspondence

### PREGNANCY FOLLOWING SLOUGHING OF CESAREAN UTERINE SUTURES

To the Editor—In THE JOURNAL, May 7 1932 I described the passing, through the vagina, of the entire continuous interlocked catgut suture which had been placed on the outer surface of the uterus during the performance of a low cervical cesarean section, and stated that because of the good apposition of the thickened walls of the uterus it was likely that union would be good despite loss of the suture and ischemic tissues caught within. Since no rupture of the uterus during pregnancy had been reported following low cervical cesarean section, and since uteri have often been sutured tightly enough to cause ischemia of the tissues at the wound I have felt the prognosis for the next pregnancy to be favorable if section was performed without onset of actual labor.

A short time following this publication, Dr Irving F Stein of Chicago stated that the uterus was likely to rupture during a subsequent pregnancy or labor, also Dr D A Horner of Chicago reported a case in which the layers of continuous uterine sutures were passed in the lochia on the tenth day, followed by uneventful recovery.

Dec 19, 1935, four years and forty-eight days after the passage of the uterine sutures through the vagina, the patient was again delivered by low cervical cesarean section. Pregnancy had proceeded uneventfully except for a tenderness in the lower part of the abdomen and the back. During the last few weeks the patient became restless and complained of pain in the pelvis and distention of the external genitalia. At section a few adhesions were found but the old scar in the cervix could be located only with difficulty. The lower uterine segment was apparently normal. Tubal sterilization was done. Recovery was uneventful.

HARRY S FIST, M D, Los Angeles

### PURKINJE

To the Editor—A short while ago I was perusing THE JOURNAL of Nov 24, 1934 and on page 1583 came across the following excerpt from the Harveian oration by James Collier: "In 1835 Purkinje, an Austrian priest of Gipsy family." This is reprinted from the *British Medical Journal*. The original paper was published also in the *Lancet* Oct 20 1934. May I call attention to the enclosed reprint from the *Lancet* of Nov 3, 1934, which contains my exact statement of the facts with regard to Purkinje his family and his work.

To call J E Purkinje a gipsy evokes if I may put it that way an almost distressing feeling for Purkinje was one of the greatest men from our countries in fact one of the greatest physiologists or better to say scientists in the realm of medicine of the last century. J E Purkinje was born on Dec 17th 1787 in Libochovice in Bohemia—Bohemia is a country of Czechoslovakia in the same sense as Wales is a part of Great Britain—and was of Czech parentage. For a short yet excellent biography of Purkinje in English see the well known *History of Medicine* by Fielding H Garrison London Saunders 1917 p 475 et seq of the second edition which I have to hand.

It is really bad luck about J E Purkinje for the American Illustrated Medical Dictionary by Dorland the twelfth edition of which I have makes the incorrect statement that Purkinje was a Hungarian physiologist and that he died in 1850. In fact he was of Czech parentage and died in Prague in 1869. The editor of this dictionary promised on my request to correct it in the next edition.

Anthropological Institute, Masaryk University

PROF VOJTECH SUD, M D PH D  
Brno, Czechoslovakia

### "RECURRENCE OF INOCULATION MALARIA"

To the Editor—Dr M C Petersen in a recent article (THE JOURNAL, March 7 p 775) refers to the "recurrence of inoculation malaria." This emphasizes the importance of using a malarial strain in which no sexual forms of the parasite are found. In a series of articles published in the *American Journal of the Medical Sciences* 176 664 (Nov) 1928, 179 800 (June) 1930 and 184 262 (Aug) 1932, my associates and I have shown that approximately two and a half years is required to obtain a true biologic adaptation of the malarial parasite from a strain in which gametocytes occur to one in which they are absent. This has been done under the auspices of the New York State Psychiatric Institute and Hospital by continuous human passage of a sexual strain of malaria.

By using a strain of malaria in which no sexual forms are present the possibility of transmission of malaria by mosquitoes to other persons is precluded and furthermore the asexual forms of the malarial parasite yield much more readily to quinine than do the sexual forms.

NICHOLAS KOPELOFF, PH D, New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### THE IMMUNIZATION OF INFANTS AND CHILDREN

To the Editor—I have been immunizing a nurse aged 23 against scarlet fever with the Parke Davis toxin. There was no reaction following the first injection. A generalized rash and malaise followed the second injection. The third injection caused malaise, rash, headache, joint pains and a generalized edema most marked in the face. Would you advise continuation of the immunization? If so should the usual dose be given? In the case of an interval of two or more weeks between injections how should one proceed to complete the immunization? The patient states that she has an idiosyncrasy to epinephrine so this drug has not been administered with the toxin. Will you please advise a plan of immunization for infants and children against typhoid fever, scarlet fever, smallpox and diphtheria? Please give age when they should preferably be started and amount of the typhoid vaccine that should be used for infants and young children. Kindly omit name.

M D, Utah

ANSWER—The nurse is sensitive to proteins contained in the veal broth used for production of scarlet fever toxin. It is probably advisable to discontinue immunization in such persons if they have an idiosyncrasy to epinephrine.

The exact procedure in immunizing infants and children depends on the circumstances. If there is no known exposure to any of the diseases mentioned, smallpox vaccination is usually done first. Scarlet fever and diphtheria immunization may be given between 6 months and a year of age, and in case of exposure younger infants may be immunized. The reactions are less severe if the scarlet fever immunization precedes diphtheria immunization. The protection afforded by typhoid vaccine is not permanent and cases of typhoid in infants are uncommon. If the sanitary conditions in the community are good there is no need to vaccinate against typhoid until it appears in the community or the child is going to eat away from home.

### TREATMENT OF ANAL FISSURE BY INJECTION

To the Editor—I believe that anal fissures are being treated by injection as with quinine and urea but I am unable to get a description of the technic. Will you kindly describe this technic?

ROBERT HARTWELL M D Beaumont Calif

ANSWER—The treatment of anal fissure by injection was first described by Graham in 1923. In 1926 he reported the results in 128 cases and described his technic. He uses a small glass syringe to which he attaches a 27 gage needle and injects a 5 per cent solution of freshly prepared quinine and urea. The point of the needle is inserted about 5 mm away from the external margin of the fissure and the solution is injected beneath the base of the ulcer in such a manner as to raise it throughout its entire extent. About 1 cc of the solu-



tion is usually necessary. The patient experiences "rather severe pain" during the treatment, but on its completion local anesthesia has been produced. It is stated that during the following ten days or two weeks topical applications of silver nitrate and other medicaments can be made without causing pain and that the spasticity of the sphincter disappears. The treatment is usually completed in from two to three weeks.

This type of treatment has been advised in cases in which only the fissure is present. If external or internal hemorrhoids or other pathologic conditions requiring surgical treatment are found, it is better to include the fissure in the operation. Modifications of this type of treatment have been advocated. The object of these modifications has been to alter the solution in such a manner as to render the injection itself painless.

#### CARBON MONOXIDE HEADACHE IN GARAGE WORKERS

*To the Editor*—What can be done for frequent headaches that are common in garage workers as the result of the fumes of gasoline from the exhaust of automobiles? Acetylsalicylic acid gives no relief. Please advise treatment for these headaches both prophylactic and symptomatic or curative. Can you list references on byproducts of gasoline combustion which are the probable etiologic factors? Please omit name if published.

M D, Pennsylvania

**ANSWER**—The foremost source of headaches in garages is carbon monoxide. The average composition of automobile exhaust gas when the cars are operating on a level grade is

Carbon dioxide	8.6%
Oxygen	2.3%
Carbon monoxide	6.3%
Methane	0.9%
Hydrogen	3.0%
Nitrogen	78.6%

When motors are operating in garages, the percentage of carbon monoxide may be appreciably higher, particularly when the motors are first started, especially if the garage is unheated.

Evaporating motor fuels are second in order of importance as a source of headache. Gasoline represents a complex mixture of petroleum hydrocarbons but chiefly consists of pentane, hexane and heptane. Chief of these is hexane.

One gallon of gasoline burned in an automobile motor under specified conditions as to atmospheric temperatures and pressure produces 988 cubic feet of exhaust gas. It is computable that 622 cubic feet of carbon monoxide is thus produced. Even small cars discharge as much as 1 cubic foot of carbon monoxide per minute. As 0.01 per cent of carbon monoxide may produce headache, it is at once obvious that dangerous work conditions quickly may be brought about in garages. These statements chiefly are derived from the publication of the New York Academy of Medicine entitled "Carbon Monoxide Poisoning and the Automobile Exhaust" appearing in the Bulletin of the New York Academy of Medicine, August 1926 page 402. This publication, while old, remains one of the best presentations of the carbon monoxide hazard in garages and connected with the use of automobiles.

When headache is the sole manifestation of carbon monoxide poisoning, symptomatic and curative treatment is of relative unimportance. The obvious procedure is prevention. The concentration of carbon monoxide should be reduced below the threshold of any physiologic response. Motors long operated in the course of repairs should be hooked up with conduits discharging the exhaust gases into the general atmosphere. General exhaust systems should serve to prevent the accumulation of gases within garage areas resulting from the ordinary operation of motors. In most cities adequate testing devices are available, in public health departments or gas companies, suitable for the detection of even traces of carbon monoxide in the atmosphere.

#### TREATMENT OF SYPHILIS

*To the Editor*—I am treating a man aged 24, for syphilis. The Wassermann and Kahn reactions are four plus. His weight is 160 pounds (73 Kg). I have given him intravenously eight 0.6 Gm doses of neoarsphenamine and am now giving him intramuscularly two injections a week of a bismuth preparation. My plan is to alternate the arsenicals and bismuth preparation for one year with no rest period unless careful checkup necessitates change of plan. Would there be an unfavorable condition likely to arise should I substitute mapharsen for neoarsphenamine in the future treatment of the case?

M D Nebraska

**ANSWER**—The continuous system of treatment as planned for the patient for the ensuing year is particularly valuable in the treatment of syphilis in patients who are able to tolerate such intensive types of treatment. Care must be exerted to avoid the development of such treatment complications as dermatitis, hepatitis, neuritis and the blood dyscrasias. The results of the use of the continuous system as a rule are excellent if

the patient will follow the system and complications are not encountered.

As mapharsen is a recent development and clinical experience with it has been relatively short, it is too early to pass judgment as to its value. The inquirer has made no mention of how long the patient has had the syphilis, but the fact that he is 24 years of age would indicate that the disease was recently acquired. It would therefore seem advisable to continue to use drugs such as arsphenamine or neoarsphenamine, the value of which has been established by experience with it during the past quarter of a century.

#### EPIDEMIC STREPTOCOCCIC LARYNGITIS

*To the Editor*—For the past year I have been seeing cases the signs and clinical courses of which are suggestive of influenza of a mild type. Accompanying these crises is a markedly injected pharynx, involving the soft palate, uvula, tonsils and postpharyngeal wall. These areas are covered with fine red streaks. Occasionally there are slightly elevated punctate red spots. No ulcerations are present. At times the uvula and tonsils appear edematous. In most cases in which I have examined the nares the mucous membrane of the entire nose has the same appearance. Following the administration of salicylates or antipyretics the general symptoms subside in from twenty-four to forty-eight hours. There in a week or two the patients complain of general asthenia and lassitude and they develop a cough of a spasmodic nature, which occurs on arising in the morning and lying down in the evening. This cough is comparable to that which occurs in pertussis except for the whoop that accompanies it. Regardless of the various local applications such as mild silver proteins, silver nitrate and tincture or solution of mercuric iodine this injection of the entire throat persists for from four to six months. During this entire period the patient complains of a general feeling of not being well. Am I right in assuming that I am dealing with cases of influenza? Do you think that it is advisable to take cultures of these throats? Can you recommend some measures to hasten recovery or to eradicate the infections from the throats? Please omit name.

M D Pennsylvania

**ANSWER**—The description of the course of cases given is similar to that which has appeared in the literature previously, and the usual organism at fault is a hemolytic streptococcus. As there is no statement as to whether a laryngoscopic examination was made, the laryngeal and tracheal involvement can be surmised only by the presence of the obstinate cough that so closely resembles that of pertussis. Only a short time ago the laryngeal aspects of the condition referred to were described in an article by Herbert Tilley and Dan MacKenzie (Epidemic Streptococcic Laryngitis, *Brit M J* 2 3 [July 6] 1935). The course of these cases is protracted, as a rule the temperature at onset is not high and prostration is not great. The cough which is pertussis-like and violent may be accompanied by pain due to edema of the larynx. Occasionally, organisms other than the hemolytic streptococcus are present, such as *Micrococcus catarrhalis*. It would be advisable to take cultures of these throats. It might even be worth while to use a vaccine that is made from cultures in those instances in which convalescence is very slow. However, too much should not be expected from that method of treatment. Chronically inflamed tonsils should be removed and any sinusitis that is present should be cleared up, if possible. Apart from this, time is the greatest factor in the recovery.

#### SCARLET FEVER TOXIN BY MOUTH

*To the Editor*—In your issue of October 26 in reply to an inquiry as to the effect of swallowing scarlet fever toxin you say: "If the child was previously susceptible to scarlet fever and swallowed such an amount of toxin he has partially or completely immunized himself against the disease. It will do no harm. No treatment is indicated. If this is true why go to the trouble of five weekly injections with the possibility of severe reactions to produce immunity? Also if this is true why can't this toxin be used by mouth in treatment of the disease?"

EDWIN L. DRAPER, M.D., Champaign, Ill.

**ANSWER**—In an article entitled "Antitoxic Immunity Resulting from Administration of Toxin by Mouth" (*The Journal*, April 23, 1932, p. 1436) George F. and Gladys Henry Dick concluded that toxin administered by mouth may stimulate production of the corresponding antitoxin but that toxin administered by mouth is less efficient than considerably smaller amounts injected subcutaneously. Reactions sometimes occur following mouth administration as they do following hypodermic administration of the toxin. Such reactions in both methods of administration cause no permanent injury and do not require treatment. The principal objection to substituting the administration of toxin by mouth for hypodermic injection is that less than 3 cc of the undiluted toxin is required completely to immunize more than 90 per cent of susceptible persons by the hypodermic method, while approximately 500 cc of the undiluted toxin would be necessary to immunize about 70 per cent.

by mouth. It is improbable that mouth immunization will come into general use unless the volume of toxin can be reduced and the percentage immunized increased. At present the method is chiefly employed in such special cases as hemophilia or cardiac decompensation.

#### VAGUS PRESSURE IN TACHYCARDIA

*To the Editor*—Regarding the Query and Minor Note on paroxysmal tachycardia (THE JOURNAL July 27 p 302) I see no mention of deep hard vagus pressure in the neck when it comes to treatment. Also there is no mention of any treatment directed toward gastric or abdominal conditions. I happen to have had this disturbance ten or fifteen years ago at the age of 40. Dr. Hugo Freund and several other good men saw me including the heart man at the Battle Creek Sanitarium. Care in diet and smoking and drinking was all that was suggested. It was not until I was virtually carried into Dr. Harry Schmidt's office with a pulse rate of 200 or more that I was told of vagotomy and to press hard on the vagus nerves. This soon put an end to my trouble and although even now there are slight recurrences two or three times a year they can easily be checked by this procedure. Diet, smoke and drink have their effects in bringing on a gastric or abdominal distention—it seems more like a solar plexus blow—and this seems to me to be the dominant causative factor. This may all be old stuff to you but it was not to me or the many good men that I consulted. M D Michigan

*ANSWER*—The point is well taken. Vagus pressure, which is really stimulation of the carotid sinus, will stop the paroxysm of tachycardia in many more than half the cases. The carotid artery is palpated and pressed firmly by the palpating finger at the level of the bifurcation of the common carotid. Either side may be used, but usually pressure is more efficacious on the left. It is better not to press on the two sides simultaneously. If there is no result the position of the palpating finger may be changed up or down, along the course of the artery. It is frequently advisable to teach some member of the family how to stop the attacks by this means or the patient may be taught to do it himself. There are several other ways of stopping the attacks such as inducing nausea by tickling the pharynx, swallowing some large bolus or changing the posture in some particular way. Discussion of this will be found in Vaquez's textbook on the heart. It is interesting to note how many patients have found some way of stopping the attacks themselves. Gastric and abdominal conditions should always be considered, and frequently attention to diet and dietary habits will make the attacks less frequent.

#### PLASTIC SURGERY OF FACE

*To the Editor*—A girl aged 6 was struck in the face by a board five weeks ago. Inspection of her face at the present time shows a ridge which begins at the point midway between the corner of the eye and the nostril, runs just below the malar prominence and ends at a point about half way between the corner of the mouth and external auditory meatus. There is no tenderness or discoloration at present. On palpation with a finger inside the mouth the bony structures are found to be apparently normal while a ridge can be felt in the soft parts of the cheek. The impression from palpation is that of feeling the lower edge of a ruptured muscle which has retracted upward. Please inform me if this is a reasonable supposition and as to the prognosis. The present appearance is disfiguring. Please omit name. M D New Hampshire

*ANSWER*—If it was a bony displacement it is too late to correct it without radical cutting of the bone and if it is in the soft parts nothing is to be gained by any immediate attempted correction. It possibly might be due to a cutting of the muscle but more probably is an infiltration of the soft tissues resulting from overactive efforts at repair. Under any circumstances, nothing is to be lost by observing the case for several months and postponing any surgical correction until all possible natural repair has been accomplished.

#### FEVER TREATMENT IN SYPHILIS OF THE NERVOUS SYSTEM

*To the Editor*—I have a patient with syphilis of the nervous system the only evidence being the pupillary reflexes. Arsenicals and preparations of bismuth have been given and the blood and spinal fluid Wassermann reactions are negative. He has read of fever therapy and has asked me regarding the complete cure by such a method. What in your opinion is the answer to the query? While he is negative now under arsenicals I do not consider him cured.

GEORGE E. KNAPPENBERGER, M.D., Macomb, Ill.

*ANSWER*—This patient is not one that is suitable for fever treatment. The use of arsenicals and bismuth compounds is ample therapy for his mild clinical state and negative serologic reactions.

It is advised that this patient be given long periods of rest between courses of therapy.

Fever treatment is indicated only in dementia paralytica.

#### HEMANGIOMA OF ADNEXA

*To the Editor*—Please advise me what to do for an apparent hemangioma of the left adnexa revealed by laparotomy. The patient is a woman aged 27. No other pelvic disorder is present. Is radium or x-ray advised? Please omit name. M D Arizona

*ANSWER*—Hemangioma of the adnexa is unusual. If possible, an attempt should be made to remove it surgically. Subsequent treatment would then depend on the microscopic examination of the removed tissue. If it is malignant the pelvis should be thoroughly treated with high voltage x-rays administered from various portals. If benign, radiation therapy need not be instituted. Since the patient is so young, surgical attack may be considered in preference to irradiation so as to avoid an artificial menopause.

#### TREATMENT OF UTERINE FIBROIDS BY X-RAYS

*To the Editor*—In the treatment of uterine fibroids by x-rays does the tumor entirely disappear when the treatment is satisfactory?

FRANK E. WIEDEMANN, M.D., Terre Haute, Ind.

*ANSWER*—Fibroid tumors do not entirely disappear following satisfactory roentgen therapy; they undergo the same sort of involution which occurs at the menopause, that is, there is marked shrinkage in the muscular elements but the fibrous tissue persists. Of course if the fibroids are degenerated, calcified or cystic, little change in their size could be expected after radiation therapy.

#### FREEMARTIN AND INTERSEXUALITY

*To the Editor*—I was told by a stock breeder that in the case of cattle when twins are born, one male and one female, they usually do not reproduce. Does this hold true in man?

MILTON TRAUTMAN, M.D., Prairie du Sac, Wis.

*ANSWER*—In cattle, when twins of opposite sex are born, the female of the pair is usually an intersexual individual, called freemartin, and is sterile. The male of the pair is normal and fertile. In man, no comparable situation occurs in connection with twins, but intersexual individuals do occur, the origin of which is not well understood.

#### BELL'S PALSY

*To the Editor*—On page 727 of THE JOURNAL February 29 I notice two inquiries regarding the treatment of Bell's palsy. Of 337 cases referred to the Department of Physical Therapy at the Vanderbilt Clinic of the Columbia Presbyterian Medical Center only 142 cases existing more than two weeks failed to respond to treatment with diathermy and the static wave current. It was necessary to continue treatment for a period greater than twenty-four treatments using diathermy, galvanic motor point stimulation, massage and exercises before a mirror. Fifty-seven cases sent to the department that had existed less than two weeks responded to a few treatments of light and the static wave current. Ninety-two cases existing under two weeks did not clear up within a period of two weeks and were finally cleared up when galvanic motor point stimulation was added. The remaining cases considered old cases cleared up without any galvanic stimulation at all. Merely diathermy and the static wave current were applied. From an experience extending from 1928 to 1936 it is conclusively shown that heat in the form of radiant light or mild diathermy plus the decongestive effect of the static wave current is sufficient to bring about prompt relief of symptoms.

Cases of facial paralysis preceding or following mastoid operations do not respond to this treatment but can be successfully treated with the galvanic motor point. As the faradic current is irritating and cannot be measured in its intensity it has been entirely discarded in my clinic. These cases were all diagnosed by the outpatient department of the Neurological Institute where electrical reactions were tested but no matter if the long standing cases did show a reaction of degeneration galvanic motor point stimulation has been persisted in with most gratifying results. Lifting massage and exercises in front of a mirror twice a day at home by the patient are considered of great importance, but by far the most important factor in the treatment of Bell's palsy is the early institution of decongestive therapy.

NORMAN E. TITUS, M.D., New York

#### PERSISTENT SUPERFICIAL INFECTION

*To the Editor*—In THE JOURNAL February 22 in Queries and Minor Notes there is an inquiry under the heading Persistent Superficial Infection. While it is always hazardous to express an opinion and give advice in an entia I shall nonetheless endeavor to do this in the hope of really offering the patient in question and others similarly afflicted relief. The noncommittal answer to the inquiry further justifies this procedure. This is not the place for a detailed discussion of a diagnosis for that I would refer the inquirer to an article published by me in 1930 on recurrent lymphangitis (Minnesota Med. 13:902 [Dec.] 1930). The treatment consists of the injection of foreign protein intravenously and filtered roentgen therapy locally. My results by these methods have been eminently satisfactory.

WILLIAM H. GOCKERMAN, M.D., Los Angeles

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ARKANSAS *Medical (Regular)* Little Rock May 12 13 Sec State Medical Board of the Arkansas Medical Society Dr A S Buchanan  
Prescott *Medical (Eclectic)* Little Rock May 12 Sec Dr Clarence H Young 207 1/2 Main St Little Rock  
CALIFORNIA *Reciprocity* San Francisco May 13 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento  
HAWAII Honolulu April 13 16 Sec Dr James A Morgan 48 Alexander Young Bldg Honolulu  
IOWA *Basic Science* Des Moines April 14 Sec Prof Edward A Benbrook Iowa State College Ames  
MINNESOTA Minneapolis April 21 23 Sec Dr Julian F Du Bois 350 St Peter St St Paul  
NEBRASKA *Basic Science* Omaha May 5 6 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln  
NEW MEXICO Santa Fe April 13 14 Sec Dr E LeGrand Ward Sena Plaza Santa Fe

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* May 6 8 June 22 24 and Sept 14 16 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral examination for Group A and B applicants will be held in Kansas City Mo May 11 12 Sec Dr C Guy Lane 416 Marlboro St Boston*

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Oral clinical and pathological examination of all candidates will be held in Kansas City Mo May 11 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)*

AMERICAN BOARD OF OPHTHALMOLOGY Kansas City Mo May 11 and New York Sept 26 *All applications and case reports must be filed sixty days before date of examination Asst Sec Dr Thomas D Allen 122 S Michigan Ave Chicago*

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Kansas City Mo May 11 Sec Dr Fremont A Chandler 180 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Kansas City Mo May 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Kansas City Mo May 9 Albany, N Y June 10 Baltimore and Cincinnati in November Sec Dr C A Aldrich, 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY St Louis Mo May 8 9 Sec Dr Walter Freeman 1028 Connecticut Ave Washington D C

AMERICAN BOARD OF RADIOLOGY Kansas City Mo May 8 10 Sec Dr B R Kirklin Mayo Clinic Rochester Minn

AMERICAN BOARD OF UROLOGY Kansas City Mo May 8 10 Sec Dr Gilbert J Thomas 1009 Nicollet Ave Minneapolis

### Connecticut November Examinations

Dr Thomas P Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, Nov 12-13, 1935. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Twenty-four candidates were examined, 19 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1934) 79 6	(1935)	79 2*
George Washington University School of Medicine	(1934)	(1934)	75*
Northwestern University Medical School	(1924)	(1924)	75
Rush Medical College	(1932)	(1932)	76 4
University of Louisville School of Medicine	(1934)	(1934)	77
Boston Univ School of Medicine (1929) 75	(1930) 79	(1934)	75 9*
Harvard University Medical School	(1934) 77 4	(1935)	80*
Tufts College Medical School	(1934) 77 4	(1935)	73 7*
University of Michigan Medical School	(1935)	(1935)	80 3
University of Nebraska College of Medicine	(1930)	(1930)	82 1
Columbia Univ College of Physicians and Surgeons	(1934) 82 3	(1934)	83 7*
(1935) 82 3			
University of Rochester School of Medicine	(1930)	(1930)	76 5
Jefferson Medical College of Philadelphia	(1934)	(1934)	75
University of Edinburgh Faculty of Medicine	(1934)	(1934)	75 2

School	FAILED	Year Grad	Number Failed
Tufts College Medical School	(1935)	(1935)	1
University of Vermont College of Medicine	(1912)	(1912)	1
Osteopaths †			3

Twenty-two physicians were successful in the oral examination held at Hartford, November 26, for endorsement applicants. The following schools were represented:

School	PASSED	Year Grad	Endorsement of
University of California Medical School	(1926) Rhode Island	(1926)	(1926) Rhode Island
Colorado School of Medicine	(1933) * (1933)	(1934) 2 N B M Ex	(1934) 2 N B M Ex
Yale Univ School of Medicine	(1933) * (1933)	(1934) 2 N B M Ex	(1934) 2 N B M Ex
Tulane University of Louisiana School of Medicine	(1933) Rhode Island	(1933)	(1933) Rhode Island
Harvard University Medical School	(1933) N B M Ex	(1933)	(1933) N B M Ex
Tufts College Medical School	(1932) Rhode Island	(1932)	(1932) Rhode Island
(1933, 2) (1934) N B M Ex			
University of Michigan Department of Medicine and Surgery	(1906) * New York	(1906)	(1906) * New York
Columbia University College of Physicians and Surgeons	(1932)	(1932)	(1932)
Long Island College Hospital	(1892) * New York	(1892)	(1892) * New York
Vanderbilt University School of Medicine	(1931)	(1931)	(1931) Tennessee

University of Texas School of Medicine (1926) Texas  
University of Vermont College of Medicine (1932) \* (1933) N B M Ex  
Queen's University Faculty of Medicine (1928) Mass  
University of Edinburgh Faculty of Medicine (1932) N B M Ex

\* License has not been issued

† Examined in medicine and surgery

## Book Notices

*The Treatment of Diabetes Mellitus* By Elliott P Joslin M D M A Medical Director George F Baler Clinic New England Deaconess Hospital Boston With the cooperation of Howard F Root M D Priscilla White M D and Alexander Marble M D Fifth edition Cloth Price \$6 Pp 620 with 9 illustrations Philadelphia Lea & Febiger 1935

For nearly twenty years, Joslin's "Treatment of Diabetes" has been the authoritative work in English on this subject, and the present edition, written with the cooperation of his associates Drs Howard F Root, Priscilla White and Alexander Marble, is no exception.

Prior to the advent of insulin, the major problem in the treatment of diabetes was the control of glycosuria and its attendant symptoms. Complications such as carbuncles and tuberculosis were fatal, but degenerative arterial lesions incident to diabetes of long standing constituted a comparatively minor problem because few patients with severe diabetes survived long enough for such complications to develop. At present, with insulin, the control of glycosuria is possible with the use of any one of a number of widely different diets, nevertheless the incidence of arterial disease has greatly increased and its prevention has become almost the chief concern of the clinician. Furthermore, many complications that formerly were almost invariably fatal to persons with diabetes are now amenable to treatment and carry a mortality only slightly greater than they affect persons without diabetes.

As one would anticipate, these changes in the nature of the diabetic problem are reflected in Joslin's new edition. For example, entire chapters are devoted to complications occurring in the digestive, nervous and genito-urinary systems and in the organs of special sense, as well as to tuberculosis, cancer, syphilis and diseases of the blood and skin affecting diabetic patients. As in previous editions, the problems incident to juvenile diabetes, infections, surgery and pregnancy in diabetes are discussed in detail.

In dealing with the relative merits of the high-carbohydrate low-fat diet versus the low-carbohydrate high fat diet, Joslin is inclined to pursue and recommend a middle course. The diets that he used in 1935 contained on an average about 150 Gm of carbohydrate. His attitude toward the problem can best be expressed in his own words: "Insulin and the use of the principle of undernutrition make the high carbohydrate low-fat diet possible, and now it is simply a question of time to determine whether patients with equally severe diabetes living upon diets containing more than 200 grams of carbohydrate will be better off at the end of ten or twenty years than those who have lived upon a somewhat lower value. The introduction of these diets has resulted in substantially raising the carbohydrate in the ration of the author's cases and of practically all diabetics throughout the world. However, we must wait for end-results." Unquestionably his judgment here is sound.

As in previous editions also Joslin objects to diets high in fat on the ground that a disturbed lipid metabolism is responsible for the high incidence of arteriosclerosis among patients with diabetes. For example, in the chapter on cardiovascular diseases revised by Root, this statement occurs: "I believe the chief cause of premature development of arteriosclerosis in diabetes, save for advancing age, is due to an excess of fat in the body (obesity), in the diet, and in the blood. With an excess of fat diabetes begins and from an excess of fat diabetics die formerly of coma, recently of arteriosclerosis." Further on in the same section he says: "Can it be that the prevalence of arteriosclerosis in diabetes is to be attributed to the high fat and high-cholesterol diets we have prescribed? This may be the case. At any rate it is reasonable to maintain the cholesterol in the blood of our patients at a normal level, and that I shall strive to do." It is apparent that Joslin was, and still is, impressed by Aschoff's modification of Virchow's imbibition theory of arteriosclerosis, which attributes arteriosclerosis to

physiologic strain and the imbibition by the arterial walls of plasma containing excessive amounts of lipids, especially cholesterol

To many students of metabolism this theory of arteriosclerosis has never been very satisfying and recently it has been subjected to critical scrutiny by C Lyman Duff (*Experimental Cholesterol Arteriosclerosis and Its Relationship to Human Arteriosclerosis*, *Arch Path* 20 81 [July], 259 [Aug.] 1935) Certainly the question is still open. The book would have been improved as a work of reference if some of the evidence against the lipid theory of arteriosclerosis had been included. Regardless of how one feels about this theory, no one can object seriously to Joslin's application of it in his plan of treatment, in which efforts are made to control the level of blood cholesterol as well as blood sugar. However, as Joslin is free to admit, lowering of the blood cholesterol usually occurs when diabetes is well controlled regardless of the type of diet used. Also an authors index would have made the book more useful. Technically the new edition otherwise has been materially improved. Its size has been reduced by nearly 400 pages. This reduction has not been obtained at the price of thoroughness and is a distinct advantage for the man who takes his reading matter to bed with him. In sharp contrast to much of the current medical literature the delightful personality of the author is evident in his work. His style, as always, is refreshing and his attitude toward the problems of the diabetic patient is unequalled in its sympathetic understanding. His book merits a place in the library of every physician.

Association pour la documentation photographique et cinematographique dans les sciences. II<sup>e</sup> Congres Paris 4 11 Octobre 1934. Compte rendu publie par les soins du Dr C Clouet et de J Painleve. Paper Pp 93 with illustrations. Paris. Librairie Moline S A 1935

The second congress of the Association pour la documentation photographique et cinematographique dans les sciences was held in the halls of the Musee pedagogique Paris Oct 4, 1934. The use of photography and cinematography is becoming an increasingly valuable aid not only in the teaching of students but also as a method of disseminating knowledge among laymen. The second congress consisted of lectures on numerous scientific subjects, most of which were illustrated with motion picture films. Among the papers published in the association's official journal is an article on autophoric transplantations by Professor Przibram of the Biologic Institute of the Academy of Science, Vienna. He demonstrated with five films the art of transplantation. He first demonstrated the transplantation of insects' heads, using for example the coleopteras. The head of a hydrophilus was exchanged with the head of a dytiscus. Other films demonstrated transplantations made on Orthoptera, *Dipopus*, cold blooded vertebrates and rats.

In his paper on recent progress in infra red photography, Dr Andre Charriou discusses radiations and colors the spectral sensibility of photographic emulsions material necessary for infra-red photography photography in total darkness and the application of infra-red photography to medicine zoology, botany, archeology and astronomy. Of medical importance is the use of the infra-red technic in cases of eczema. It is possible to demonstrate the changes in the subcutaneous small blood vessels directly under and surrounding the affected area. Dr Charriou has also been successful in making infra-red photographs of eyes affected with cataracts. The pictures revealed certain details that are not visible to the naked eye.

Dr Fischgold presented a paper on some roentgenographic documents on cardiac physiology. He employed the chronophotographic method of Marey in recording the various heart dimensions.

Dr Weyl discussed the possibilities of realization of psychologic films.

Motion picture films were used to illustrate the paper by Drs Guichard and Pelissier on the head in breast and bottle feeding. He points out that the correct method for holding an infant during feeding prevents certain buccal maxillofacial deformity.

Dr Charles Clouet discussed filmograms which is a method of recording various stages of plastic operations by a series of still pictures.

Jean Painleve presented a long and detailed article on photomicrography. He particularly stressed the importance of micro-

cinematography (time lapse motion photomicrography), both in black and white and in natural colors. Mr Painleve stated that photomicrography in relief would be very desirable, although the prospects of such a technic being developed in the near future is very remote.

Fourteen illustrations are found in the entire journal.

Lehrbuch der Endokrinologie für Studierende und Ärzte. Von Dr Tage Kemp und Dr Harald Ohkels. Nach dem Manuskript der 2. Auflage des Lærebog i Endokrinologi aus dem Dänischen übersetzt von Dr Lore Marx. Paper. Price 10 80 marks. Pp 224 with 92 illustrations. Leipzig. Johann Ambrosius Barth 1936.

This is a German translation by Dr Lore Marx from the manuscript of the second Danish edition of the 'Lærebog i Endokrinologi'. It is intended to be a brief summary of present knowledge of endocrinology as related to clinical medicine. Emphasis is placed on the morphology of the glands both normal and pathologic, clinical disorders are illustrated with photographs. The illustrations are unfortunately not uniformly well done, although the majority are useful. As with so many other attempts at preparing a brief summary of this complicated and fast moving field the text is seriously deficient in many particulars. Fundamental contributions by well known investigators are frequently omitted altogether or given but passing mention, among these are important works of Stewart and Rogoff on the adrenals of Hanson on the parathyroids, of Turner on the pituitary and mammary glands. Conversely, undue credence is given such ill founded theses as, for example, those of the sexual rejuvenationists. One amusing instance of curious terminology, probably deriving from retranslation of English to Danish to German, is that the 'emergency theory' of adrenal function is here designated 'Katastrophentheorie' (which at that, is perhaps not an inaccurate name for it). Provided its many deficiencies are kept clearly in mind, parts of this book may be useful for reference.

Über Gewebsoxydation bei B<sub>1</sub> Avitaminose und Inanition. Inaugural dissertation von Håkan Rydin [Aus Upsala Läkareförenings Föreläsningar N F Bd XLII heft 12]. Paper. Pp 183 with 26 illustrations. Upsala. Almqvist & Wiksells Boktryckeri A B 1935.

The question whether tissue oxidation is decreased as a specific effect of vitamin B<sub>1</sub> deficiency has engaged the attention of numerous investigators, and the published results have occasioned considerable debate. The fact that during any prolonged lack of vitamin B<sub>1</sub> there is failure to eat a sufficient amount of food and therefore inanition of varying degree has made it necessary to determine at the same time the tissue oxidation in inanition control animals. This inaugural dissertation is a detailed report of an extended investigation of this general problem. Pigeons were used as the experimental animals. Both the Warburg microspirometer technic and the Thunberg methylene blue method were used to estimate the degree of oxidation characteristic of muscle liver kidney, brain and blood cells taken from normal birds pigeons that had subsisted on a polished rice diet, and birds exhibiting varying degrees of inanition but not lacking vitamin B<sub>1</sub>. The effect of supplying crystalline vitamin B<sub>1</sub> also was investigated. Some idea of the scope of this research can be gained from consideration of the fact that, in addition to using two quite different technics for measuring the degree of tissue oxidation prevailing observations were made not only on groups of 'normal' and 'inanition control' birds but even on the same pigeon by means of an extirpation technic by which samples of an organ were taken during a preliminary period of subsistence on an adequate diet, then during a period of vitamin deficiency, and finally during a subsequent normal period. The fact that the results obtained by the two different methods for estimating tissue oxidation were not always the same, that listing of the organs for their oxidative capacities as revealed by these two technics did not give identical results, doubtless serves to explain many of the contradictions found in the literature. In general this work supports the view that the lowered tissue oxidation observed in vitamin B<sub>1</sub> deficiency is to be attributed to the accompanying inanition. With respect to the brain however, support was obtained for the view of Peters and his associates that vitamin B exerts a specific action on the oxidative processes occurring in this organ. The detailed data collected by this author are presented in thirty-one tables and important relationships set forth in twenty-six charts. The data are sufficiently detailed to satisfy the specialist in this field. This monograph should

constitute a valuable addition to the library of every student of the physiologic function of vitamin B<sub>1</sub>. The citations from the literature are sufficiently extensive to form a valuable list of references bearing on this subject

**Human Personality and the Environment** By Charles Macfie Campbell Professor of Psychiatry, Harvard Medical School Cloth Price \$3 Pp 252 with 11 Illustrations New York Macmillan Company 1934

"This book presents the substance of six lectures delivered before a lay audience," the author states in a preface. As he also recognizes, it is a somewhat heterogeneous mixture of scientific views concerning the structure of the body, the mechanisms through which its functions are integrated and the principles of genetics with unsystematic references to qualities of personality and tendencies to reaction culled from many different sources, medical, biographic and literary. The text is well written and full of interesting suggestions and illustrations, which even if they do not present a systematic philosophy do lead to an appreciation of the complexity and significance of the problem of personality and to the manifold lines of endeavor that must be followed for its elucidation. The book can be recommended without hesitation for reading by physicians generally

**The British Pharmaceutical Codex 1934** An Imperial Dispensary for the Use of Medical Practitioners and Pharmacists. Published by Direction of the Council of the Pharmaceutical Society of Great Britain Fabrikoid Pp 1768 London Pharmaceutical Press 1934

This volume is a companion to the British Pharmacopoeia 1932, a review of which appeared in these columns some time ago. In the book under retrospect one finds an authoritative survey of standards, including tests for identity, purity, methods of assay, pharmacologic action and therapeutic uses not only of substances in materia medica appearing in the British Pharmacopoeia but also of those found to be of value by experienced workers in the British dominions. The text is divided into four parts. The first part contains monographs on chemicals and on crude drugs of animal and vegetable origin, and in addition to the general description includes paragraphs describing the action and uses and a concise summary of the preparations, also indicating the manner in which the substance is most conveniently prescribed. The second part contains descriptions of surgical dressings including their requirements and method of quantitative estimation when essential, while the third deals with the formulary section, deflecting modern pharmaceutical thought. The fourth part comprises the appendices, containing considerable material, including various tables, lists of atomic and molecular weights, reagents commonly used in chemical and clinical testing, important drugs classified according to their use for specific effect in certain diseases, and substances bearing proprietary trade names, followed by a comprehensive index. There are peculiarities, which do not detract from the book. The volume is a contribution worthy of consideration in any scientific library and is of value to these interested as well as to pharmacists and medical practitioners, for whom it was primarily intended, particularly those of the British Empire

**Données anatomiques en vue de la chirurgie réparatrice mammaire** Par C. Clouet et I. Berthod Paper Pp 58 with 36 Illustrations Paris Librairie Maloine S A 1935

The authors feel strongly that in order to repair hypertrophied and other deformed female breasts correctly the surgeon should have a clear knowledge of the anatomic disposition of the structures concerned. The first part of this profusely but poorly illustrated monograph is therefore devoted to the anatomy of the breast and contiguous structures. The authors show that the mammary gland is anatomically associated with the cutaneous and subcutaneous systems and not with the pectoral muscles. Following the morphologic exposition, the authors deal with the various types of mammary ptoses and the mechanism of their production. They stress that the important factor causing pendulous breasts is distention of the suspensory apparatus of the breast due to elongation of the fascia superficialis. Any plastic operation for correction of a deformed breast rationally conceived ought to fulfil certain conditions, which include reconstruction of the suspensory ligament, which is in many cases a most difficult task to accomplish, preservation of the nutrition of the areola and nipple, preservation of the

innervation and of some of the galactiferous canals, and a scar as small as possible close to the areola. The authors describe their own operative method of complying with these desiderata. While not offering anything particularly new or original, the monograph is worth study by surgeons interested in plastic procedures on the female breast

**Complete Handbook on State Medicine** J. Weston Welch Chief Compiler Paper Price \$2.50 extra copies to same school 75 cents each Pp 158 Portland Me. Debaters Information Bureau 1935

This compilation is designed for the use of debaters of the question of state medicine. It contains a study outline of the subject with a bibliography, briefs for both sides, with rebuttals, and some general instructions on debating. There is a fairer distribution of the quantity of material between the two sides than in other handbooks prepared for the same purpose. Yet the statements of the Committee on the Costs of Medical Care are said to be "far ahead, in authoritativeness, of any other evidence that you can possibly quote in this debate," and no reference is made to the fact that the accuracy of these statements has been seriously questioned. The College of Surgeons is also quoted as endorsing sickness insurance, which the negative is encouraged to offer as an alternative to state medicine. There is no quotation of the resolutions against sickness insurance by the House of Delegates of the American Medical Association. It can only be said that the affirmative bias is less evident and the information on both sides more complete than in the majority of similar handbooks

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Medical Practice Acts Determination of Reputability of Medical School**—Dr. Henry Blank was graduated from the Chicago Medical School and obtained a license to practice medicine in Illinois. Later he applied to the Wisconsin board of medical examiners for a license under section 147.17 Wisconsin Statutes, which provides that the board "may license without examination a person holding a license to practice medicine and surgery

in another state, if in such state the requirements imposed are equivalent to those of this state, upon presentation of the license and a diploma from a reputable professional college." The board refused to issue the license, on the ground that it did not recognize the Chicago Medical School as a reputable medical college. Dr. Blank then instituted mandamus proceedings to compel the board to hold a hearing to determine the reputability of the school of graduation. The trial court entered an order in favor of the petitioner, Dr. Blank, and the board appealed to the Supreme Court of Wisconsin.

The petition for the writ of mandamus alleged among other things that, after several attempts by Dr. Blank to get the Wisconsin state board of medical examiners to grant a hearing to determine whether the Chicago Medical School was a reputable medical college, a meeting of the board was held, at which Dr. Blank appeared "but was not given his right to a legal hearing," that thereafter, because of protests of Dr. Blank, the board notified Dr. Blank's attorney that another hearing would be held and invited Dr. Blank to be present, that at this meeting three members of the faculty of the Chicago Medical School were present and were given a hearing, but that the board refused to permit Dr. Blank or his attorney to be present while representatives of the school were before the board, and that Dr. Blank's attorney then demanded of the board "a legal hearing for your [the] petitioner and that the testimony at such hearing be reduced to writing by a qualified stenographic reporter to allow transcription thereof for the purpose of a record of the proceedings and any necessary judicial review," and that the board refused this demand.

The general rule, said the Supreme Court of Wisconsin, governing the procedure of medical boards in determining the status of a medical school is as follows:

"The board may adjudicate the status of a medical college as to reputability either of its own motion or on petition of the college and where the law does not define the method by which the board shall pro-



ceed to determine the reputability of the college it may perform its duty in that regard in any reasonable way it may deem proper' 48 *Corpus Juris* 1093

'The board is not bound by the ordinary rules of procedure or evidence that apply in a court of law or equity' 21 *R C L* 367

The function of a court in controlling by mandamus the action of such a board was considered in *State ex rel Coffey v Chittenden*, 112 Wis 569, 88 N W 587. In that case a mandamus was sought to compel the state board of dental examiners to grant a license to practice dentistry and the court said

It is elementary that in mandamus proceedings to coerce any board in the exercise of quasi judicial power the sole legitimate purpose thereof is to set such board in motion to command it to act not *ho v* to act to exercise the judicial power vested in it not to control as to the conclusion to be reached

Since it [the law] requires the board to pass upon the reputability of the school in circumstances like those in this case and places no limit upon the methods by which it shall gather information bearing on the subject for decision it may proceed in any reasonable way and candidates for licenses must submit to its judgments unless they transgress the boundaries of reason and common sense

In the present case, the court said, the board gave reasonable notice to both the Chicago Medical School and to Dr. Blank, who demanded the hearing. Three members of the medical faculty of the school and Dr. Blank appeared before the board. There is no allegation that any evidence offered by them was rejected or that they were denied opportunity to present evidence. Dr. Blank's complaint was, not that he was not given notice, nor that he was denied opportunity to establish his claim, but that he and his attorney were not permitted by the board to be present when the members of the medical school presented their evidence, and that his demands for another hearing and to have a competent stenographic reporter take down and transcribe the testimony were denied. Dr. Blank, the court said, was not entitled to be present before the board when witnesses were being heard and his exclusion was not a denial of due process. Administrative boards, even though their functions are quasi judicial and involve the determination of questions of fact, are not bound to conduct their proceedings as courts ordinarily conduct theirs. Furthermore, a court may not compel an administrative board to have the testimony given before it taken down by a stenographer in the absence of a statute requiring this method of recordation of testimony. The board may take its testimony and keep its records in 'long hand' if it wants to.

Dr. Blank was not entitled, as a matter of right the court said, to have the board grant him any hearing. The present case is distinguishable from *State ex rel Milwaukee Medical College v Chittenden*, 127 Wis 468, 107 N W 500. In that case the Milwaukee Medical College was recognized by the state dental board as a reputable college. Another college preferred charges against it claiming that it was not reputable and the board, without giving notice to the Milwaukee Medical College, "resolved" that the college dental department was not a "reputable dental school." The Supreme Court of Wisconsin, in that case, held that the determination by the board was without notice to the college and the action was violative of the due process secured by the Fourteenth Amendment to the United States Constitution. In the present case the Chicago Medical School had never been recognized by the board as a reputable medical college. Nothing would have been taken away from the college and certainly nothing was taken away from Dr. Blank, the court said, by denying the request for a hearing. The board had theretofore determined that the college was not reputable, and the court pointed out it does not appear that its previous determination was not based upon facts sufficient to support it. If Dr. Blank was entitled to a hearing before the board for reconsideration of the matter so was every other graduate of the college that wanted a license in Wisconsin. If the facts are such that the school is reputable under the Wisconsin law or was so at the time Dr. Blank received his diploma from it, Dr. Blank's remedy the court said is not to mandamus the board to grant him a hearing but to mandamus it to grant him a license.

The action of the trial court in issuing the order against the board was therefore reversed, and the record remanded with instructions to deny the petition for the mandamus—*State ex rel Blank v Granlung (W's)*, 262 N W 614

## Society Proceedings

### COMING MEETINGS

- American Medical Association Kansas City Mo May 11 15 Dr Olin West 535 North Dearborn St Chicago Secretary
- Alabama Medical Association of the State of Montgomery Apr 21 23 Dr D L Cannon 519 Dexter Avenue Montgomery Secretary
- American Academy of Pediatrics, Kansas City Mo May 11 12 Dr Clifford G Grulee 636 Church St Evanston Ill Secretary
- American Association for Thoracic Surgery Rochester Minn May 4 6 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary
- American Association of the History of Medicine Atlantic City N J May 4 Dr Edward J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency St Louis May 14 Dr Groves B Smith Beverly Farms Godfrey Ill Secretary
- American Bronchoscopic Society Detroit May 27 Dr Lyman Richards 319 Longwood Ave Boston Secretary
- American Dermatological Association Swampscott Mass June 4 6 Dr Fred D Weidman Medical Laboratories, University of Pennsylvania Philadelphia Secretary
- American Gastro Enterological Association Atlantic City N J May 4 5 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Asheville N J May 25 27 Dr Otto H Schwarz 630 S Kingshighway Blvd St Louis Secretary
- American Heart Association Kansas City Mo May 12 Dr H M Marvin 50 West 50th St New York Acting Executive Secretary
- American Laryngological Association Detroit May 25 27 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Denver, May 18 20 Dr C Stewart Nash 708 Medical Arts Building Rochester N Y Acting Secretary
- American Neurological Association Atlantic City N J June 1 3 Dr Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society Hot Springs Va, June 1 3 Dr J Milton Griseom 255 South 17th St Philadelphia Secretary
- American Orthopedic Association Milwaukee May 18 21 Dr Ralph K Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Detroit May 28 29 Dr Thomas J Harris 104 E 40th St New York Secretary
- American Psychiatric Association St Louis May 4 8 Dr William C Sandj State Education Building Harrisburg Pa Secretary
- American Radium Society Kansas City Mo May 11 12 Dr E H Skinner 1103 Grand Ave Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 4 Dr J M Hayman Jr Lakeside Hospital Cleveland Secretary
- American Society for the Hard of Hearing Boston May 26 30 Miss Betty C Wright 1537 35th St N W Washington D C Secretary
- American Society of Clinical Pathologists Kansas City Mo May 6 10 Dr A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Chicago May 7 9 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Kansas City Mo, May 8 9 Dr Oscar B Hunter 1835 Eye St N W Washington D C
- American Urological Association Boston May 18 21 Dr Clyde L Deming 789 Howard Ave New Haven Conn Secretary
- Arizona State Medical Association Nogales Apr 23 25 Dr D F Harbridge 15 East Monroe Street Phoenix Secretary
- Arkansas Medical Society Hot Springs National Park Apr 27 29 Dr W R Brooksher 602 Garrison Ave Fort Smith Secretary
- Association for the Study of Internal Secretions Kansas City Mo May 11 12 Dr E Kost Shelton 34 Micheltorena St Santa Barbara Calif Secretary
- Association of American Physicians Atlantic City N J May 5 6 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Coronado May 25 28 Dr F C Warnshuis 450 Sutter St San Francisco Secretary
- Connecticut State Medical Society, Hartford May 20 21 Dr Charles W Comfort Jr 27 Elm Street New Haven Secretary
- District of Columbia Medical Society of the Washington D C May 6 Dr C B Conklin 1718 M St N W Washington D C Secretary
- Florida Medical Association S S Florida Apr 27 29 Dr Shaler Richardson 111 West Adams St Jacksonville Secretary
- Georgia Medical Association of Savannah Apr 21 24 Dr Edgar D Shanks 478 Peachtree Street N E Atlanta Secretary
- Illinois State Medical Society Springfield May 19 21 Dr Harold M Camp 202 Labl Building Monmouth Secretary
- Iowa State Medical Society Des Moines Apr 29 May 1 Dr Robert L Parker 3510 Sixth Ave Des Moines Secretary
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- Medical Women's National Association Kansas City Mo May 10 12 Dr Laila A Coston Conner 333 East 68th St New York Secretary
- Minnesota State Medical Association Rochester May 3 6 Dr E A Meyering 11 West Summit Ave St Paul Secretary
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Dr L B McBrayer Southern Pines Secretary  
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Pacific Coast Oto-Ophthalmological Society Del Monte Calif April 13 16  
Dr Frederick C Cordes Fitzhugh Bldg San Francisco Secretary  
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167 Angell St Providence Secretary  
South Carolina Medical Association Greenville Apr 21 23 Dr E A  
Hines Seneca Secretary  
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F D Cook Langford Secretary  
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Shoulders 706 Church Street Nashville Secretary  
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Taylor 1404 W El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### Alabama Medical Association Journal, Montgomery

5 273 300 (Feb.) 1936

Trends of Medical Practice J S McLester Birmingham—p 273  
Diabetes Manifestations and Difficulties in Treatment W L Miller  
Gadsden—p 276  
Cough Causes and Significance J A Keyton Dothan—p 279  
Spastic Colon E S Sledge Mobile—p 282  
Dangers of Dental Interference in Acute Blood Dyscrasias G Walsh  
R M Pool and A S Hargis Fairfield—p 284

### American J Digestive Diseases and Nutrition, Chicago

2 709 774 (Feb.) 1936

\*Incidence and Biologic Characteristics of Hemolytic *Bacillus Coli* in  
Intestinal Tract of Patients with Chronic Ulcerative Colitis Edith  
E Nicholls New York—p 709  
\*The Takata-Ara Test of Liver Function T B Magath Rochester  
Minn—p 713  
Hippuric Acid Test for Hepatic Function Its Relation to Other Tests  
in General Use A M Snell and J E Plunkett Rochester Minn  
—p 716  
Phenolphthalein Studies I Colloidal Phenolphthalein B Fantus and  
J M Dymewicz Chicago—p 721  
Influence of Some Organic and Inorganic Acids on Motility of Small  
Intestine N M Gray Montreal—p 725  
Blood Buffer Values in Mineral Deficiency I N Kugelmaass, New  
York—p 730  
\*New Technique for Continuous Control of Acidity in Peptic Ulcer by  
Aluminum Hydroxide Drip E E Woldman and V C Rowland  
Cleveland—p 733  
Therapy of Peptic Ulcer Conservative versus Radical E H Gaither  
Baltimore—p 736  
Lymphopathia Venerea Clinical Survey C F Martin Philadelphia  
—p 741  
Recto-Urethral Fistula Operation for Its Cure C D Gaston and  
A B Lee Birmingham Ala—p 744

**Incidence and Biologic Characteristics of Hemolytic *Bacillus Coli* in Chronic Ulcerative Colitis**—Nicholls made cultures of 135 proctoscopic smears from forty-two patients with chronic ulcerative colitis and found the hemolytic form of *Bacillus coli* in eighty-four, or 62.2 per cent, of the samples. In forty-five of the eighty-four cultures the hemolytic bacillus was present in large numbers (from 50 to 100 per cent). If only the first swab specimen is considered from each patient hemolytic *Bacillus coli* organisms were present in twenty-six, or 61.9 per cent, of the forty-two cases. Repeated swab cultures were obtained from twenty-eight of the patients, the number varying from two to ten from a single patient. Specimens were taken at intervals ranging from one week to several months and thirteen patients were studied over a period of from one to two years. In twenty-two or 78.6 per cent, of the twenty-eight patients hemolytic *Bacillus coli* was present in at least one of the specimens studied. In the six negative cases four patients had only two cultures and two had four cultures. In incidence and biologic characteristics, hemolytic and non-

hemolytic strains of *Bacillus coli* recovered from the proctoscopic smears of the patients differed in no respect from those obtained from stool specimens of healthy subjects.

**The Takata-Ara Test of Liver Function**—In order to test the value of the Takata-Ara reaction, Magath performed the test in a series of eighty-six consecutive cases. In each case also a bromsulphalein test was performed simultaneously. Qualitative and quantitative van den Bergh tests were done in eighty-three cases, and quantitative determinations of protein were made in sixty-two cases, all the tests being done on sixty-one patients. The patients were carefully studied clinically, with especial reference to the possibility of disease of the liver. The condition of the liver of twenty-seven patients was observed either at operation or at necropsy. The diagnosis of cirrhosis was made in twenty-five patients, of whom sixteen gave a positive Takata-Ara test, however sixteen other patients with out cirrhosis also gave positive tests. Hepatic disease of some kind was diagnosed in fifty-three patients, the Takata-Ara test being positive in twenty-eight and negative in twenty-five instances. With four patients who apparently did not have involvement of the liver the Takata-Ara test was positive. Of nine patients with malignant conditions involving the liver, seven gave a positive Takata-Ara reaction. The negative tests in cases of disease of the liver were for the most part obtained in cases of early lesions, or relatively small ones, and obstructive lesions did not usually result in positive tests. There was no evidence to suggest that changes in the total protein of the serum could be correlated with the Takata-Ara tests. In only about half of the cases in which there was reversal of the albumin-globulin ratio was the liver involved, and in nine out of twenty-one cases of cirrhosis the ratios were reversed. Only one case, that of a hypernephroma, gave a reversed ratio and one in which involvement of the liver was not diagnosed. It is possible that the fibrinogen content of the serum has an influence on the Takata-Ara reaction and may account for Takata's results in cases of pneumonia. The correlation between the Takata-Ara test and the bromsulphalein test was not high, only half the cases that showed dye retention gave a positive Takata-Ara test. Direct van den Bergh reactions were present when twenty-two Takata-Ara tests were positive and when twenty were negative. In nine cases with positive Takata-Ara tests the van den Bergh reaction was indirect. In four of these cases the liver was not involved. Of the ten patients in the series diagnosed as having syphilis, five had a positive Takata-Ara test, the liver was evidently involved in these five cases. The van den Bergh reaction was direct in thirty-nine of fifty-two cases in which the liver was involved and in two in which the liver was not involved according to clinical diagnosis (hypernephroma and hemolytic jaundice). In fifty-one cases in which the liver was involved by disease the dye test was positive. The test was positive also in three cases in which the liver was thought to be uninvolved (arthritis, hypernephroma and facial neuralgia). In these three cases the dye remained was just sufficient to report the test as grade 1 (6 per cent of dye retained). In two cases there was evidence to justify the clinical diagnosis of involvement of the liver, but the report of the dye test was negative. These two cases were of tertiary syphilis with clinical manifestations of hepatitis but with no positive laboratory tests, and of recurrent cholangitis, respectively, tests being done during a remission. Of sixteen cases in which dye retention of grade 1 was present, involvement of the liver was surely present in thirteen and probably was present in one other case.

**Control of Acidity in Peptic Ulcer by Aluminum Hydroxide Drip**—Woldman and Rowland believe that the nasal drip method of continuous twenty-four hour adsorption of gastric acidity by aluminum hydroxide has promise of definite usefulness in the treatment of the acute stage of peptic ulcer. If reliance is placed on antacid treatment, there is every reason to carry it out in the most thorough and continuous manner. The aluminum hydroxide drip is free from the danger of alkalosis and of secondary acid secretion. The method is entirely compatible with any type of dietetic or sedative treatment. Because of continuous neutralization the diet can be suited more definitely to the nutritional needs of the patient rather than crowded in frequent feedings to control acidity. Functional rest of both the secretory and motor function of the

stomach may be allowed in larger measure Especially for the intractable case, before surgery is resorted to, the method represents an additional refinement of technic in medical management About 200 cc of 7 per cent colloidal aluminum hydroxide is added to 600 cc of distilled water, which, allowed to drip into the stomach at the rate of 5 or 6 drops per minute, will require twenty-four hours for its consumption

### Arkansas Medical Society Journal, Fort Smith

32 137 148 (Feb) 1936

- Underwater Therapy in Treatment of Chronic Arthritis E M Smith  
Hot Springs National Park—p 137  
Some Physiologic Aspects of Hypertension C H McDonald Little  
Rock—p 138

### California and Western Medicine, San Francisco

44 73 144 (Feb) 1936

- Psittacosis and Tularemia Report of Cases—Infection of Two Laboratory Workers in California Recovery—p 79  
\*Poisoning Due to Ingestion of Mixture of Sodium Bicarbonate Sodium Fluoride J C Geiger San Francisco—p 81  
Acute Fluorine Poisoning Report of Five Cases J L Carr San Francisco—p 83  
Psychiatry and the Law B W Black Oakland—p 87  
Fresno County Part Pay Plan H M Ginsburg Fresno—p 92  
Fractures of Both Bones of Arm or Leg Their Management E W Cleary, San Francisco—p 94  
Shock Treated by Warmed Air H H Hitchcock and T E Reynolds Oakland—p 98  
Biopsy in Malignant Disease O H Pfueger and W P Stowe San Francisco—p 99

**Poisoning Due to Ingestion of Mixture of Sodium Bicarbonate and Sodium Fluoride**—Geiger reports the fact that a mixture of sodium bicarbonate and sodium fluoride, sold in bulk as sodium bicarbonate, was responsible for poisoning in twenty one reported instances, three of which terminated in death Samples submitted by those made ill and by members of the families of the deceased and those obtained by the inspectors of the department of public health from the various sources involved (except those from intact barrels of the original product) consistently showed arsenic and fluorine on qualitative chemical analysis, on quantitative analysis these samples were found to contain varying proportions of sodium bicarbonate and sodium fluoride, demonstrating a heterogeneous, "spotty" or "pocket" distribution The epidemiologic picture, at first confused by the positive reactions indicating the presence of arsenic in the specimens of "baking soda" and of commercial sodium fluoride was clarified through further study, which brought out the fact that hydrofluoric acid found through the reaction of hydrochloric or sulfuric acid with the sodium fluoride of the mixture dissolved the glass of the containers and released arsenic from it in sufficient quantities to give positive reactions for arsenic Recheck tests in petriolatum lined glass containers gave consistently negative results for arsenic It should be emphasized that there is no danger from sodium bicarbonate of standard brands sold in good condition, in the original package The incident should awaken interest in the real and potential hazards existing in the salvage of foods and drugs and the need for effective legislation that will require and provide adequate official supervision and regulation over all persons, firms and corporations dealing in foods and drugs This incident should serve as a warning and give impetus to the medical profession federal authorities and officials to secure adequate control over the labeling manufacture, distribution sale and use of insecticides particularly those containing fluorine

### Colorado Medicine, Denver

33 73 152 (Feb) 1936

- Chronic Arthritis Classification and Etiology of Chronic Arthritis T P Sears Denver—p 84  
Id Pathology and Symptomatology of Chronic Arthritis C F Kemper Denver—p 87  
Id Atrophic and Hypertrophic Arthritis Roentgen Diagnosis K D Allen Denver—p 91  
Id Treatment of Chronic Arthritis J C Ryan Denver—p 95  
Id Treatment of Chronic Arthritis from the Orthopedic Standpoint C E Sevier Denver—p 101  
Tetanus Treatment by Antioxin Intracranially P M Schunk, Sheridan—p 115  
Administration of New Hypnotic Law as It Affects Colorado Hospitals A D Baker Denver—p 120

### Kansas Medical Society Journal, Topeka

37 45 88 (Feb) 1936

- \*Histidine Treatment of Peptic Ulcer E W Wilhelmy and E H Hashinger Kansas City Mo—p 45  
Vaginal Reflexes and Their Disturbances O W Davidson Kansas City—p 48  
Surgical Treatment of Pulmonary Tuberculosis H Bradshaw, Boston—p 52  
Coccidioid Granuloma J V Van Cleave Wichita—p 54  
Cautery Surgery in Treatment of Cancer W B Steward Topeka—p 55  
Removal of Foreign Bodies in the Extremities W J Kiser Wichita—p 57

**Histidine Treatment of Peptic Ulcer**—Since January 1935, Wilhelmy and Hashinger have treated and carefully followed twenty-six unselected cases of roentgenographically proved peptic ulcers The method of procedure has been the daily injection of 5 cc of 4 per cent histidine monohydrochloride for a period of twenty-four days No untoward complications or reactions have been encountered nor has any patient complained of soreness or discomfort from the treatment The average duration of symptoms for the entire series was 87 years A typical ulcer history with epigastric distress one or two hours after meals intermittence with food and alkali relief were present in about 85 per cent of the cases Roentgenographic observations were checked immediately after treatment and again from two to four months later with the following results Four were considered cured four improved and the remainder unimproved Those cases considered cured were the ones in which no remaining evidence of ulcer could be detected Decrease in the size of the ulcer and lessened gastric motility was the basis on which four cases were classified as roentgenographically improved Marked roentgen improvement with no clinical relief was shown in one case The clinical results of the series show seventeen cases or 65.4 per cent, with complete or partial relief, and nine cases or 34.6 per cent, with no clinical improvement Of the seventeen cases, thirteen were completely relieved and four were partially relieved Because of the natural tendencies of peptic ulcers to heal or become symptom free for varying periods of time without any treatment, no definite conclusions can be drawn until these cases, and many more, have been followed for a period of several years It is apparent, however, that here is a method of treatment that will at least give symptomatic relief in about the same percentage of cases as the authors' former method of procedure, which consisted of a modified Sippy regimen

### Maine Medical Journal, Portland

27 23 44 (Feb) 1936

- The Medical Profession versus Racesteering J G Murray St Paul—p 25  
Analysis of Two Hundred and Twenty Three Cases of Uterine Malignancy W Holt Portland—p 27  
Acute Ileus W H Bunker Calais—p 33

### New England Journal of Medicine, Boston

214 227 276 (Feb 6) 1936

- Obstructive Cholangitis Involving Extrahepatic Bile Ducts H K Sowles Boston—p 227  
Uterovesical Carcinoma Cystectomy—Ureterosigmoidostomy Case Report W C Quinby Boston—p 232  
\*Hypothesis for Origin of Renal Calculus A Randall Philadelphia—p 234  
Management of Fibroma of Retropharynx Report of Case H L Albright Boston—p 242  
Ionization in Treatment of Hay Fever and Allied Conditions S W Garfin and S M Pearl Boston—p 244

**Hypothesis for Origin of Renal Calculus**—Randall believes that there are but two basic causal factors capable of initiating the development of a stone in a renal pelvis The difference between these two causal factors can be sharply delineated and the resultant stone should be termed a "primary" or a secondary renal calculus depending on which of these two causal factors is present In the first class or the primary renal calculus one finds those cases in which the clinical picture is especially clear To it belongs the individual in otherwise perfect health who is suddenly seized with the clinical state known as calculus colic It is the author's firm conviction that such a calculus has arisen as a gradual crystallization on a lesion in the renal pelvis Somewhere in the renal pelvis, most probably on a papilla or in the papillary-caliceal angle, there has occurred a primary ulcerative lesion It is small but with

a raw surface, and the precipitation and coalescence of urinary salts have occurred on it. The salts so precipitated are those which at that time are especially supersaturated in the urine. As such the deposit starts and, once started, has every reason to increase gradually in size. Being so fixed, it gives no symptoms of its presence until, owing to some factor, be it trauma, size, weight or sudden motion, it ceases to be a fixed concretion and breaks loose from its point of origin. The next natural course is nature's effort to extrude the calculus down the ureteral line of drainage, with the result that one sees the patient in acute ureteral stone colic. Primary papillary or caliculi ulceration is of much more frequent occurrence than supposed. Such ulceration may be infectious, trophic or allergic. The facts demonstrated by Lieberthal and von Huth in renal tuberculosis are pregnant with possibilities in regard to the more frequent occurrence of pelvic ulceration in other infectious states. In the second class belong the calculi formed in a renal pelvis in which urinary stasis is present because of some obstruction to the normal urine outflow. It has been the tendency to look at this picture in a reverse order, making the stone the cause of the hydronephrosis rather than the resultant effect or complication of a hydronephrotic pelvis. To the author this picture is closely akin to the recognized condition as seen in vesical calculus. As the first class which forms as crystallizations on pelvic ulceration, is termed "primary" renal calculi, so this second class, postulated on faulty pelvic drainage, is called "secondary" renal calculi. The actual origin of the secondary renal calculi demands nothing more for a nucleus than a cluster of desquamated cells, a bacterial clump or a tiny clot of blood. They are easily assimilated into the clinical pabulum as the familiar vesical stone, and on equally parallel lines runs the observed fact that, when all the essential factors appear to be present for a stone's growth, it does not of necessity materialize. There is no doubt that in these secondary stones, formed of varying chemical laminae, certain salts at certain epochs reach the threshold of their insolubility in such a supersaturated liquid as the urine and precipitate in pure form over a period of time. Under these conditions there will be periods when one type of salt will be more easily precipitated than others, and the laminations will correspond to exactly such periods. Likewise the growth of such stones varies according to the type of deposit then being made. The factor of supersaturation of a urinary salt becomes of greater consequence the more one dwells on these facts and as such lends greater weight to the role of colloidal chemistry.

### New York State Journal of Medicine, New York

36 219 302 (Feb 15) 1936

- Chronic Arsenical Poisoning Symptoms and Sources A B Cannon New York—p 219  
Association of Fractures and Paget's Disease (Osteitis Deformans) C A Traver Albany—p 242  
Pathology of Fatal Birth Injuries W E Studdiford New York—p 247  
Radium Therapy D Quick New York—p 251  
Chronic Encephalitis Care and Treatment of Patients Found in State and Municipal Hospitals O C Perkins Brooklyn—p 255  
Infection of Soft Tissue by Gas Producing Organisms Early Recognition by Roentgenograms Report of Five Cases L R Lingeman Rochester—p 259  
Five Thousand Gastrointestinal X-Ray Examinations Review and Summary of Conclusions E C Koenig Buffalo—p 264  
Dinitro Orthocresol Metabolic Stimulator and Its Toxic Side Actions M Plotz Brooklyn—p 266

### Puerto Rico J Pub Health & Trop Med, San Juan

11 167 368 (Dec) 1935

- Studies in Filariasis I In Puerto Rico F W O Connor New York and Constance R Hulse—p 167

### Southwestern Medicine, Phoenix, Ariz

20 39 80 (Feb) 1936

- Treatment of Pneumonia in Early Childhood E P Cook San Jose Calif—p 39  
Peptic Ulcer Benign or Malignant? C T Stone Galveston Texas—p 44  
Gastrointestinal Symptoms in Pernicious Anemia G M Brandau Monahan Texas—p 47  
Quinine Intravenously in Treatment of Pneumonia O H Brown Phoenix Ariz—p 49  
Repair of Pelvic Floor J S Masson Rochester Minn—p 52  
Nerve Resections L R Kober Phoenix Ariz—p 56  
Studies on the Nature of Phagocytosis Z M Flinn Prescott Ariz—p 57

### Tennessee State Medical Assn Journal, Nashville

29 43 84 (Feb) 1936

- Extraperitoneal Pathology with Intraperitoneal Symptoms J B Hashins Chattanooga—p 43  
Diagnosis and Removal of Foreign Bodies from Lower Air Passages C K Lewis Memphis—p 48  
Typhus Fever J P Keller Nashville—p 52  
Treatment of Cystitis G M Roberts, Chattanooga—p 57  
Treatment of Empyema in Children J G Eblen Knoxville—p 67

### Western J Surg, Obst & Gynecology, Portland, Ore

44 67 132 (Feb) 1936

- \*Cesarean Section Mortality and Morbidity P H Arnot San Francisco—p 67  
Study of Cardiac Disease Complicating Pregnancy Margaret Schulte San Francisco—p 80  
Elliott Treatment of Pelvic Inflammatory Disease R Fallas Los Angeles—p 88

**Cesarean Section**—Arnot states that low cesarean section, routine vaginal cleaning before operation, fewer vaginal examinations in cases not progressing well in labor, improved technique and the frequent use of blood transfusions were the chief reasons for there being no maternal deaths in ten and one-half years (356 cases) in his hospital. There was no relationship between the incidence of morbidity and the number of hours the membranes had been ruptured, the patient not being in labor. Neither was there such a relationship in the group of patients who went into labor without ruptured membranes. But when the patient was in labor and the membranes had ruptured, time definitely increased the incidence of morbidity. The test of labor, with or without ruptured membranes, was the biggest causative factor in cases in which there was fever for ten days or more. Previous cesarean section gave a considerable immunity toward infection, while other types of previous laparotomies decreased it slightly. Previous vaginal delivery conferred little or no immunity.

### West Virginia Medical Journal, Charleston

32 53 100 (Feb) 1936

- Estimation of Disability After Injury W G Stern, Cleveland—p 53  
Personal Factors in Determining Compensation Awards A S Dayton Charleston—p 56  
Allergy Industrial Hazard M F Petersen Charleston—p 60  
Uniformity in Disability Ratings P R Harrison Jr Charleston—p 62  
The Problem of Chest Disease in Industry G H Barksdale Charleston—p 67  
Conservative Treatment of Compound Fractures W G Stern Cleveland—p 71  
Can the Medical Profession Endure? C H Hall Elkins—p 76  
Acute Posttraumatic Osteoporosis C B Smith Charleston—p 78  
Fistula in Ano with Pilonidal Sinus Case W M Warman Morgantown—p 80  
\*Early Oxygen Injection of Joints to Prevent Adhesions New Procedure E B Henson Charleston—p 85

**Early Oxygen Injection of Joints to Prevent Adhesions**—Henson has had continued good results for six years with the use of oxygen or air injection of joints to break up adhesions. Experience has shown that some joint capsules can be made to expand more than others with the same known pressure, therefore, for inflation, not more than 1 or 2 pounds of pressure should be used. Oxygen has replaced air, because oxygen stimulates synovial secretion. A dry joint is no longer dry after oxygen injection. By frequent injections of acute infective joints, the danger of dense adhesions is greatly lessened and many stiff joints may be prevented. For insufflation as much fluid as possible is withdrawn from the joint and then as much oxygen as the patient will tolerate is injected. The patient should be given morphine prior to injection. In inflating chronic joints the pressure is tested so that on the first injection not more than 2 pounds is registered. This is done before the needle is inserted into the capsule of the joint. The needle is inserted into the knee joint just below the patella, an effort being made to get a space between the bones, and the pressure is then turned on and it is stopped as soon as the patient complains of pain. While the needle is still inserted the oxygen is cut off and a roentgenogram is made to get some idea of how much oxygen is actually within the capsule. The apparatus used is described.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Journal of State Medicine, London

44 162 (Jan) 1936

- Early Weeks of Life in Relation to the Health of the Adolescent A A Moncrieff —p 1  
Tuberculosis in Youth L S T Burrell —p 7  
Rheumatism and Rheumatic Heart Disease in the Young R Miller —p 14  
The Hygiene of Breathing Hearing and Speaking W Isholson —p 21  
Adolescence and Microbial Infections J W H Eyre —p 35  
Pitfalls of Physical Training R Cove Smith —p 40  
Prevention of Nervous Breakdown as Medicosocial Problem Doris M Odum —p 46

## South African Medical Journal, Cape Town

9 817 856 (Dec 14) 1935

- Our Land Is Our Population Satisfactory? Results of Inspection of Children of School Ages H M Brown —p 819  
Id Physical Tests Applied to the White Population of the Union E H Cluver —p 825  
Id Observation on Quinine Prophylaxis and Blackwater Fever in Central Africa H v R Mostert —p 827

## Tubercle, London

17 145 192 (Jan) 1936

- Tuberculosis of Air Passages S C Thomson —p 145  
\*Anterolateral Thoracoplasty in Pulmonary Tuberculosis J Thevar (thundil) —p 152  
Injurious Mirror Test for Detection of Tubercle Bacilli Note W B Wood —p 162  
Present Concepts of Tuberculous Infection and Disease Clinical and Pathologic Considerations Acquired and Constitutional Factors in Resistance to Tuberculosis E R Long —p 166

**Anterolateral Thoracoplasty in Pulmonary Tuberculosis**—Thevarthundil points out that a technic of thoracoplasty, based on the power of retraction of the lung rather than on compression from without, is being perfected. The lung is traumatized not only during its movements but also in repose in a distended state. The regions of maximal movement of the hemithorax in the upper, middle and lower parts of the thorax are the anterior anterolateral and lateral parts respectively, the posterior surface moving comparatively little. The lines of maximal dynamic trauma coincide with the line of maximal static trauma. In anterolateral thoracoplasty, an attempt is made to give repose to the lung by the elimination of the dominants, i.e., to interrupt the chief lines of traction of the thoracic wall on the lungs. The operation consists of a phrenic exceresis combined with the removal of variable lengths of ribs along the line of maximal movement. While it is admitted that an anterolateral thoracoplasty will not produce much immediate lung collapse, the author claims that it brings about considerable immobility of the hemithorax and allows lung retraction and rest. The operation being less traumatizing and shock producing than a posterior paravertebral operation it can be used with benefit in cases less chronic than those usually selected for posterior thoracoplasty and in cases in which the general condition of the patient does not warrant a serious compression operation.

## Quart Bull, Health Org, League of Nations, Geneva

4 497 630 (Sept) 1935

- The Health Organization and Biologic Standardization R Gautier —p 497  
Essay on Chrlatanism I Wasserberg —p 555  
Report of Second Conference on Standardization of Sex Hormones Held in London July 15 to 17 1935 —p 618

## Chinese Medical Journal, Peiping

49 1281 1402 (Dec) 1935

- Clinical Study of Early Manifestations of Chinese Kala Azar C U Lee and H L Chung —p 1281

## Japanese Journal of Obstetrics &amp; Gynecology, Kyoto

18 423 508 (Dec) 1935

- Biologic Study of Effect of Toxins of Malignant Tumor to Suprarenal Lymphatic System and Other Organs Parts IV V VI and VII S Okamoto —p 424  
Immunologic Study of Human and Animal Malignant Tumors Parts I II III IV V VI and VII I Yurita —p 458  
Mechanism of Radiotherapy Part I Study of Mechanism of Radiotherapy by Means of Tissue Culture Y Kominami —p 503

## Paris Medical

1 132 (Jan 4) 1936

- Tuberculosis in 1936 Annual Review P Lereboullet and H Gavois —p 1  
Pathogene is of Tuberculosis in Bovine Species C Guerin —p 12  
Preservation of Schoolboy Against Tuberculosis J Genevrier —p 13  
Experimental Investigations on Tuberculous Meningitis A Bouquet and R Broca —p 17  
Definition of Perifocal Infiltration and of Epituberculosis R Benda and H Mollard —p 22  
Thoracoplasties of Substitution and Thoracoplasties Complementary to Hemolateral Pneumothorax A Bernou and H Fruchaud —p 24  
\*Phrenicectomies or Phrenic Alcoholizations W Julien —p 28

**Phrenicectomies or Phrenic Alcoholizations**—According to Julien, the promise originally offered by phrenicectomy has not been fulfilled. Its principal disadvantages are that it paralyzes the diaphragm without insuring favorable therapeutic results, it sacrifices healthy pulmonary tissues, and it may cause accidents. Alcoholization of the nerve has some of the same disadvantages, but its effects are only temporary. The author feels that alcoholization has the advantage of avoiding the mechanical trauma produced by phrenicectomy and of allowing a tentative trial of the effect instead of a final irreversible one. He feels, therefore, that alcoholization of the phrenic nerve is usually preferable to phrenicectomy in cases in which pneumothorax is inadvisable. Ambulatory treatment is of course wholly inadvisable.

## Presse Medicale, Paris

44 41 64 (Jan 8) 1936

- Blood Polypeptides in Cancer P Duval J C Roux and Goiffon —p 41  
\*Cryptoleukemias P Emile Weil P Isch Wall and Mme S Perles —p 41  
Osteitis Deformans of Paget and Traumatism J A Lievre —p 45  
\*Measure of Speed of Circulation Applied to Evolution and Therapy of Cardiopathies R Codel and C Chehale —p 48  
Some Remarks on Bony Pegging of Diaphyseal Fractures H Lafitte —p 51

**Cryptoleukemias**—Emile-Weil and his co-workers define as cryptoleukemias the hyperplastic blood processes that are not characterized by the appearance of the abnormal cells in the blood stream. The white blood picture thus remains quantitatively and qualitatively normal. The routine diagnostic puncture of the spleen in all cases of splenomegaly throws considerable light on the blood diagnosis of this nature. Three forms of cryptoleukemia can be differentiated in this way. The most common are the lymphatic cryptoleukemias. Myeloid cryptoleukemias can also be identified. Finally leukoblastic or acute cryptoleukemias sometimes occur. The clinical recognition of these forms is now possible by means of splenic puncture. The nature of the splenomegaly, the prognosis of the disease and the speed of evolution are largely clarified. Dangers of mistaken therapeutics are also avoided and often lead to roentgenotherapy.

**Speed of Circulation and Treatment of Heart Disease**—Godel and Chehale report a practically simple method of measuring the speed of circulation and the value of these measurements in following the course of heart disease. The principle of the method consists in noting the time in seconds that elapses between the moment of injection of purified ether and sodium dehydrocholate in the arm vein and the time when the first substance is noticed in the pulmonary air and the second in the lingual mucosa as a bitter taste. The first time depends on the speed of circulation in the segment corresponding to the activity of the right ventricle, the second corresponds to the activity of the left cardiac cavities. The injection should be made under basal conditions and after fasting for at least six hours. The patient must be told what sensations to expect and to note the exact time when they occur. The time is noted with a stop-watch. The normal relation of the two phases was worked out on about 100 normal persons and was found to be about equal. Every change in the relationship is abnormal and must be considered to indicate a pathologic state. Usually cardiac insufficiency is reflected by a prolongation of the circulation time (lengthening of the time of the test). Sometimes this is due to one segment and sometimes the other or both may be affected. The test shows changes in equilibrium between the two segments and thus allows the course of functional changes due to therapeutic measures to be followed with greater accuracy.



## Riforma Medica, Naples

52 105 136 (Jan 25) 1936

- Metabolism of Retina G Lo Cascio—p 107  
 Anisocytosis of Neutrophil Leukocytes in Malignant Tumors A Barasciutti—p 110  
 \*Intratracheal Injections of Water in Treatment of Tuberculous Hemoptysis G Pennetti—p 114

**Intratracheal Injections of Water in Treatment of Tuberculous Hemoptysis**—Pennetti in 1933 reported results which he obtained in the treatment of tuberculous hemoptysis by supraglottic intratracheal injections of distilled water. Hemoptysis was controlled after one or several injections in twenty patients out of a group of tuberculous patients in whom the hemorrhages were not controlled by the hemostatics commonly used. The author interpreted the results of the treatment as due to a reflex caused by the entrance of the fluid into the respiratory tract, in which phenomenon, however, the nature of the liquid injected does not interfere. The author at this time discusses two articles published after his and related to his work. D'Angelo tried Pennetti's method in twenty cases of tuberculous hemoptysis of different intensities and came to the following conclusions: 1. The hemostatic action of distilled water is immediate and permanent in mild forms of hemoptysis, less efficient in types of medium intensity and negative in grave forms which, however, are controlled by intratracheal injections of epinephrine. 2. The therapeutic effect of the injections is due to a reflex (Pennetti's) originated by the introduction of a liquid into the respiratory tract and to another reflex of local vasoconstriction due to the action of epinephrine. Pennetti verified his previous results in a new series of eighteen cases and concluded that (1) the more or less prompt hemostatic action of the injections of distilled water and the duration of hemostasis after the injections are not related to the intensity of hemoptysis and (2) generally in grave hemoptysis satisfactory hemostatic results are obtained, but when water injections fail, epinephrine injections fail also. The second article discussed by Pennetti is by Ponticaccia, who said 'Pennetti, Ciannella and D'Angelo have confirmed my statements and sometimes have succeeded in checking hemoptysis by intratracheal injections of distilled water.' Pennetti says that both statements are wrong. His work dates from 1925 to 1933 and neither before nor since did he know of any work of Ponticaccia related to this matter. It is possible, however, that Ponticaccia may have practiced the method without reporting it. As to the statement that sometimes hemoptysis is checked with water injections, the contrary is exactly what happened: that is, only in rare cases is hemoptysis not controlled by intratracheal injections. The author gives these explanations to defend the paternity and value of the method: the rapidity of which in controlling hemoptysis surpasses all previously known hemostatic methods.

## Prensa Medica Argentina, Buenos Aires

23 291 354 (Jan 29) 1936 Partial Index

- Evolution of Tuberculosis in Diabetes Report of Case J Valdes Lambea and M de Castro Hernandez—p 291  
 Parathyroid Extract and Calcium in Tuberculous Hemoptysis R Denis A P Heudtlass and O Garre—p 299  
 Aneurysm of Left Auricle Case A O Raffo and A Ruiz Moreno—p 305  
 Meta Encephalitic Decerebrate Rigidity with Sequel of Right Pyramidal Extrapyramidal Infantile Hemiplegia Case B B Spota—p 307  
 \*Pathogenesis and Treatment of Hyperthyroid Diarrhea A Richieri—p 310

**Hyperthyroid Diarrhea**—Richieri says that increase of the thyroid secretion in the intestine alterations of the pancreas or the intestinal absorption, vagotomy or existence of hypochlorhydria and anachlorhydria are the most common hypotheses given in the pathogenesis of hyperthyroid diarrhea. The most important pathogenic factor is vagotomy produced by direct stimulation of the vagus by the hyperfunctioning thyroids. The modifications of the glandular secretions, especially the gastric, have a secondary influence in the production of diarrhea. The symptomatic treatment consists in the administration of epinephrine (two or three daily enemas of 15 or 20 drops of epinephrine in 200 cc of water), atropine (0.0005 or 0.001 Gm daily) and belladonna (15 drops orally two or three times a day). Opiates may be used in emergencies

The two essential causal treatments are roentgen irradiations and surgery of the thyroids. The medical treatment is indicated in certain cases as coadjuvant to roentgen and surgical treatments. Iodine is indispensable. The principal indications of the iodine treatment are emergencies in hyperthyroidism and the preoperative care of the patient. The most favorable time for performance of the operation is when the figures of the basal metabolism are almost normal. Other satisfactory medical treatments are 3,5 di-iodo-4-oxyphenylalanine in a daily dose of from 0.01 to 0.03 Gm, quinine or quinidine from 0.6 to 1 Gm, the sedative drugs of the nervous system and ergotamine tartrate (gynergon). Antithyroid serum does not produce constant results. Exophthalmic and toxic goiters should be differentiated for therapeutic purposes. Roentgen irradiations give satisfactory results in latent and larval forms of hyperthyroidism and exophthalmic goiter and does not have the possible dangers of thyroidectomy. Richieri advises a combined medical and roentgen treatment in exophthalmic goiter and subtotal thyroidectomy (after preoperative care of the patient by rest administration of iodine and 3,5 di-iodo 4-oxyphenylalanine) in (1) exophthalmic goiter after the failure of medical and roentgen treatments, (2) exophthalmic goiter with compression and (3) toxic goiter.

## Deutsche Zeitschrift für Nervenheilkunde, Berlin

139 245 313 (Feb 12) 1936

- Serology of Multiple Sclerosis H Ahringmann—p 245  
 Problem of Diffuse Sclerosis (Diffuse Glioblastosis of Central Nervous System) J Scheinker—p 253  
 Surface Tension in Normal and Pathologic Cerebrospinal Fluid O Kunzel—p 265  
 \*Late Posttraumatic Epilepsy W C Meyer—p 278  
 Central Respiratory Paralysis and Its Treatment by Means of the Biomotor B Hohberg—p 294  
 Aseptic Lymphocytic Meningitis After Suboccipital Puncture H Kuba—p 300

**Late Posttraumatic Epilepsy**—Meyer asserts that severe cranial traumas always remain a source of further complications, even if the direct results take a favorable course. This applies particularly to shot injuries of the head, as proved in many who were injured during the war. The author describes thirty-three cases of late posttraumatic epilepsy in which the latent period exceeded eight years. These cases of cranial injuries proved that as time advances, the manifestations of a hypersensitivity of the vascular nervous system, as symptom of a premature aging process, become more noticeable. The appearance of late epilepsy is preceded for a number of years by attacks of vertigo, which constantly increase up to the time of the first epileptic attack. The localization of the trauma seems to be of some importance, for twenty-one of the thirty-three patients observed by the author had had injuries of the frontal brain. The motor region, which seems to be of primary importance for early epilepsy, assumes only a minor role in the author's material. It was involved in only three of the cases. In five cases only the orbit had apparently been injured, but late epilepsy developed here too and it could be shown that the base of the frontal brain had also been injured, thus the cases of epilepsy could likewise be explained as posttraumatic.

## Ugeskrift for Læger, Copenhagen

98 45 66 (Jan 16) 1936

- \*Peculiar Epidemic in Roskilde in December 1935 E J Henning—p 45  
 Agranulocytosis with Recovery After Liver Extract (Ereha) Parenterally Two Cases N R Christoffersen and E Polack—p 45

**Peculiar Epidemic in Roskilde in December 1935**—The disorder in Roskilde was characterized by sudden onset with nausea, vomiting, diarrhea, headache and dizziness, sometimes fever, brief duration (in three fourths of the cases forty-eight hours at the most) and lack of complications and of grave sequels. Some cases were mild, others violent. The epidemic developed rapidly, lasted about two and a half weeks and affected 40 per cent of the inhabitants, of all ages, in the district examined, the sexes seemed equally susceptible. In Henning's opinion the ailment is an independent infectious disorder readily transmitted by an unknown agent, and the various symptoms may depend on disturbances of certain parts of the nervous system. Rischel's "epidemic nausea" (Ugeskrift for Læger 97 12) [Dec 19] 1935) is believed to be identical.

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## THE PROGNOSIS IN RENAL CARCINOMA

AND THE CLINICAL AND PATHOLOGIC DATA  
AFFECTING IT

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For the purpose of clinical consideration, malignant tumors of the kidney should be subdivided into two groups: those which have their origin in the renal cortex and those which arise from the renal pelvis.

In a survey of 283 patients subjected to nephrectomy for carcinoma of the renal cortex at the Mayo Clinic Judd and Hand<sup>1</sup> reported that seventy-four or 26 per cent, were alive and well at the end of five years. Although such favorable results may be influenced by operative technique, they probably are affected more by the histologic character of the tumor and by the extent to which the malignant process has progressed. A study of the pathologic and clinical factors conducive to longevity in these cases is of much clinical interest. What are the data derived from histologic examination of the tumor, and what are the data observed on physical examination or in the course of urographic visualization which influence the prognosis?

### PATHOLOGIC DATA

It is not generally recognized that tumors of the renal cortex are of common occurrence. Robertson<sup>2</sup> reported that, in routine studies of the kidney made at necropsy, some form of renal neoplasm is found in approximately 10 per cent of adult subjects. Most of these tumors are small, varying in size from 1 or 2 mm. to several centimeters. Although on section the histologic structure usually is described as benign, nevertheless such tumors are potentially malignant, and in some cases a lack of cellular differentiation is found which makes them actually so. Some of these tumors may become quite large and the cells may acquire a malignant character without producing any clinical manifestations. The histologic structure of renal neoplasms observed at operation is quite different and with few exceptions they give definite evidence of malignancy.

The prognosis in cases of carcinoma of the renal cortex is largely dependent on the degree of cellular differentiation, as suggested by Broders.<sup>3</sup> Although there are many variations in the morphologic charac-

teristics and arrangement of cells and in manner of growth of malignant tumors of the kidney, for practical purposes renal tumors should be regarded as just so many variations of renal carcinoma, and they should be graded in degree of malignancy according to the widely accepted criteria of cellular differentiation. This index was applied by Hand and Broders<sup>4</sup> in a study of tissue removed from 193 patients operated on for renal carcinoma at the clinic, with a degree of accuracy which proved its value in a striking manner. As might be expected, the average postoperative length of life was found to be distinctly longer in cases of tumors of the lower grades of malignancy, and only an occasional patient with a tumor of grade 4 was alive five years after nephrectomy. It was also found that the duration of preoperative symptoms was much longer in cases of tumors of grades 1 and 2, and that the duration diminished as the degree of malignancy increased. The importance of such gradations in determining the prognosis in cases of renal neoplasm is not fully appreciated.

Although from a prognostic standpoint all malignant tumors of the renal cortex may be regarded as carcinomas and may be graded according to evidence of malignancy, there are variations in the gross appearance and histologic structure which justify further classification. The most common form of cortical neoplasm observed is the adenocarcinoma, which is commonly called hypernephroma. Its gross appearance, color, apparently circumscribed localization and the papillary arrangement of its cells are quite distinctive. Adenocarcinomas may further be distinguished by the microscopic appearance of their cytoplasm which may be either clear or granular. A review by Foulds, Scholl and Braasch<sup>5</sup> of patients operated on for adenocarcinoma made up of clear cells revealed that the postoperative life of such patients was distinctly longer than when the cells were granular. Another form of renal carcinoma frequently observed has been called "alveolar" carcinoma. The gross appearance of these tumors is quite different and there is usually more diffuse involvement of the entire kidney. Microscopic examination shows that the character and arrangement of the cells are also different than in adenocarcinoma. Further differentiation between these two conditions is made possible by comparison of the clinical course as well as the urographic data. The slow growth and mild symptoms which usually characterize hypernephromas are in contrast to the clinical data observed in cases of alveolar carcinoma. Similarly the postoperative length of life of patients with the former type of lesion averages almost twice as long.

From the Section on Urology, the Mayo Clinic.  
1 Judd E. S. and Hand J. R. Carcinoma of the Renal Cortex with Factors Bearing on Prognosis. *Arch. Int. Med.* 44: 746-771 (Nov.) 1920.  
2 Robertson H. E. Personal communication to the author.  
3 Broders A. C. The Grading of Carcinoma. *Minnesota Med.* 5: 726-730 (Dec.) 1925.

4 Hand J. R. and Broders A. C. Carcinoma of the Kidney. The Degree of Malignancy in Relation to Factors Bearing on Prognosis. *J. Urol.* 28: 199-216 (Aug.) 1932.

5 Foulds C. S., Scholl A. J. and Braasch W. F. A Study of Histology and Mortality in Renal Tumor. *S. Clin. North America* 4: 407-424 (April) 1924.

## CLINICAL DATA

Among the data observed on physical examination which should be of importance in affecting the prognosis in cases of renal carcinoma the following may be included the size of the tumor and the degree of fixation, evidence of toxemia, such as vascular changes, evidence of metastasis, and the data obtained by means of roentgenography. A consideration of these data combined with the conditions found at operation and the histologic study of renal tissue, should be of value in indicating the prognosis.

**Physical Examination**—A huge tumor with fixation should indicate a poor prognosis, whereas in the case of a small movable tumor the postoperative results should be better. Curiously enough, however, the postoperative course in cases in which tumors are large is often unusually good. It is of interest to note that in a group of twenty-four patients who lived ten years or more following nephrectomy, fourteen, or 58 per cent, of the tumors removed were recorded as large, four as medium, and six as small. However, in a group of forty-seven patients with inoperable growths, a fixed tumor was found in forty-four, and forty-two died within two years following exploration. The degree of fixation is apparently of greater prognostic importance than the size of the tumor. It is surprising how frequently a tumor of large size cannot be palpated, either because of its location under the ribs or because of a muscular or adipose abdominal wall.

The hematologic picture in cases of renal neoplasm is not distinct from that in cases of malignancy in other portions of the body. As with malignant conditions in general, a low value for hemoglobin usually indicates toxemia of malignancy and a poor prognosis. A renal tumor that has been present over a period of years without producing clinical evidence of toxemia will usually show on section a low grade of malignancy.

**Hypertension**—The frequency with which hypertension is observed in association with hypernephroma was first noted by Neusser<sup>6</sup> (recently referred to by Oppenheimer and Fishberg<sup>7</sup>), and he was under the impression that the hypertension was caused by absorption of some secretion from the tumor. He suggested that because of the possible suprarenal origin of such tumors they might be the source of tumor cells with suprarenal elements. Other observers have called attention to clinical evidence of abnormality in the vascular system which was apparently caused by some specific absorption. Telangiectasis of the superficial blood vessels of the face is frequently noted in cases of hypernephroma. Dilated blood vessels in the abdominal wall and varicocele of recent origin, usually on the left side, are observed frequently, probably being caused by mechanical obstruction of the venous circulation. An increased pulse rate was noted in several cases in which the temperature was normal and in which there was no evidence of infection. The possibility of fever occurring in cases of hypernephroma has been noted by Creevy.<sup>8</sup>

In reviewing the blood pressures of forty patients who were operated on for renal neoplasms in 1933 and 1934, it was found that the blood pressure was within

normal limits in twenty-six cases and was definitely increased in fourteen. In several cases the hypertension had apparently been present for several years prior to the onset of symptoms caused by renal tumor. Other clinical data noted would indicate that the hypertension was of the essential type. In those cases in which the blood pressure was read within a year after removal of the tumor, a definite decrease was noted in comparatively few of them, in most cases the blood pressure remained stationary. A recent clinical study by Horton and Morlock,<sup>9</sup> in which they compared the hypertension occurring in cases of hypernephroma with that in other forms of renal tumor, failed to show an increased incidence of hypertension in cases of hypernephroma or any difference in the postoperative reduction in blood pressure. Of the patients who lived five years after operation, four had systolic blood pressures of more than 200 mm of mercury. It is evident from these cases that hypertension does not materially affect the prognosis.

The possibility that renal adenocarcinomas might harbor elements of the adrenal gland which could be discovered on chemical examination of the tissue of the tumors was suggested independently by Ferguson,<sup>10</sup> by Beer<sup>11</sup> and by one of us (Braasch)<sup>12</sup>. In 1932 Kendall<sup>13</sup> examined two tumors but failed to find any evidence of adrenal secretion. Following his development of chemical methods of recognizing adrenal cortex secretion, he has examined three other renal adenocarcinomas but has likewise failed to find any definite evidence of adrenal secretion.

Although occasionally one gains the impression on clinical examination that renal adenocarcinoma is associated with hypertension of recent origin, it is evident from the postoperative clinical data and from chemical analysis of the tumor that no elements are present which would cause increased blood pressure.

**Metastasis**—Metastasis is common in cases of renal carcinoma and it must be carefully searched for in every case. It occurs less frequently in the case of growths of a low grade of malignancy, and then only in the late stages. Metastasis often is observed in cases in which symptoms are not suggestive of renal involvement or symptoms of recent origin. A review of the specimens removed from metastatic tissue for biopsy in most cases revealed carcinoma of grade 3 or 4. In Hand and Broders' series of 193 cases in which operations were performed at the clinic for renal carcinoma, evidence of metastasis was found in the course of preoperative and postoperative physical examination, at operation or at necropsy in ninety-eight cases. Although it is generally believed that renal carcinoma usually metastasizes through the blood stream, lymphatic metastasis was found in seventeen of these ninety-eight cases. The involved lymph nodes were found most frequently in the renal and retroperitoneal regions, and they were so situated that they could be demonstrated on physical examination in only three cases. Visceral metastasis occurred in fifty-six cases, the most common site of involvement being the lungs, followed in order of frequency by the liver, brain and spinal cord.

The site of metastasis in cases of renal carcinoma is so frequently in the lungs that thoracic roentgenography should be made a routine procedure in every case of

6 Neusser Edmund in Nothnagel's Spezielle Pathologie und Therapie, Vienna 1871 1898.

7 Oppenheimer B S and Fishberg A M The Association of Hypertension with Suprarenal Tumors Arch Int Med 34 631 644 (Nov.) 1924.

8 Creevy C D Adenoma of the Kidney Report of a Case with a Discussion of Its Relationship to Carcinoma (Hypernephroma) Am J Cancer (supp.) 15 2309 2318 (July) 1931.

9 Horton B T and Morlock C G Unpublished data.

10 Ferguson R S Personal communication to the authors.

11 Beer Edwin Personal communication to the authors.

12 Braasch W F Personal communication to the authors.

13 Kendall E C Personal communication to the authors.

suspected renal neoplasm. In this way pulmonary metastasis frequently will be discovered in cases in which there are no pulmonary symptoms or any other clinical evidence to suggest it. On the other hand, early and minute pulmonary metastasis sufficient to cause mild symptoms suggestive of respiratory infection may be observed which is not apparent in roentgenograms made of the thorax. Cases occasionally are observed in which roentgenographic examination of the thorax was reported as negative and yet, at necropsy, made shortly after, metastasis is found in the lungs. When pulmonary metastasis does occur, it is usually found in both lungs. In the course of routine roentgenographic examination of the thorax, conditions are occasionally observed which may easily be confused with metastasis. Although the roentgenographic evidence of thoracic metastasis usually is quite definite, areas of consolidation are nevertheless sometimes observed in roentgenograms of the thorax which are of a doubtful nature, and a positive diagnosis may be of questionable value.

A number of recent articles have referred to the possibility of recovery from pulmonary metastasis. In fact, this possibility has been accepted in practice to such an extent that some surgeons have advised nephrectomy for renal carcinoma in spite of definite evidence of pulmonary metastasis. A review of six cases in which the patients were subjected to nephrectomy notwithstanding roentgenographic evidence of thoracic metastasis discloses that all the patients were reported to have died within one year following operation, and in most cases after several months. It is possible that in exceptional cases metastasis may be confined solely to the pulmonary region, however, this would occur so rarely that it is questionable whether one would be justified in advising nephrectomy in the presence of definite roentgenographic or clinical evidence of pulmonary metastasis.

Bony metastasis, generally believed to be of frequent occurrence, was found in but 11 per cent of Broders and Hand's cases. Because of its superficial localization it is observed more frequently in the course of general examination than other types of metastasis. The patient frequently has no symptoms suggestive of renal involvement. Although there was no predominant localization in the osseous system the more frequent involvement of the humerus and spinal column in this series is noteworthy.

Metastasis in the ureter was found in two cases in this series. Although of frequent occurrence in cases of epithelioma of the renal pelvis, it is rarely observed in association with cortical neoplasm. It is possible that hematuria, occasionally observed as a late post-operative complication following nephrectomy for renal carcinoma, may be caused by ureteral metastasis. Metastatic involvement of the suprarenal gland was found in two cases, in neither of which were there any symptoms or clinical data suggestive of suprarenal disease.

**Röntgenographic Data**—The value of the simple roentgenogram in the diagnosis of renal neoplasm is not fully appreciated. A careful survey of the renal regions in the simple roentgenogram frequently will give data of considerable importance. Unilateral increase in size or irregularity in the outline of the renal shadow should suggest the possibility of renal tumor. With accentuation of the renal outline such as occurs in the excretory urogram, these data may be of increased value. In the course of routine roent-

genography, the renal outline, unfortunately, may be so indefinite that the presence of abnormality is often overlooked.

The incidence of shadows in simple roentgenograms, caused by areas of calcification in the tissue of the tumor, is of much clinical interest. In a series of tumors of the renal cortex that were removed, roentgenographic evidence of calcification in the tumor was found in seven cases. It will be necessary to distinguish these shadows from those caused by lithiasis and from similar shadows frequently observed in cases of renal tuberculosis. The absence of any clinical, cystoscopic or urographic data suggestive of either lithiasis or tuberculosis usually would exclude these conditions. The deposit of calcium that occurs in cases of renal neoplasm is irregular in consistency and is usually confined to only one or two areas. In one case observed, however, calcification was widely scattered throughout the tissue of the tumor. It is of interest to note that, of the seven patients just mentioned, all but one lived more than three years and four were alive at the end of five years. It may be inferred, therefore, that the evidence of calcification is a favorable indication. The diagnosis of neoplasm frequently can be inferred in the presence of coincident areas of calcification in the simple roentgenogram and unipolar irregularity of the renal outline.

**Urography**—The value of the urogram in the diagnosis of renal neoplasm has long been recognized. However, with the development of urographic technique the standardization of interpretation, the discovery of innocuous mediums for visualization and particularly since the advent of excretory urography, it has become an essential and accurate method of diagnosis. The various types of deformity observed in the urogram in cases of renal neoplasm may be summarized as follows: (1) deformity characterized by tapering elongation or obliteration involving single or multiple calices, (2) partial or complete obliteration of the renal pelvis, (3) pyelectasis, with an irregularity in outline, and (4) displacement of the renal pelvis or upper segment of the ureter.

Involvement of but one or two calices, characterized by elongation and a tapering constriction of the terminal endings, is typical of hypernephroma and when present the diagnosis usually can be made. Irregular involvement of all the calices, a filling defect and partial obliteration of the lumen of the pelvis are suggestive of tumor of a high degree of malignancy, and these changes are more frequently observed in cases of alveolar carcinoma or epithelioma of the renal pelvis. Complete obliteration of the pelvis can easily be confused with a closed hydronephrosis. Minor degrees of deformity in the calices, such as crescentic flattening frequently observed with renal cyst and polycystic kidney, are sometimes found in cases of localized neoplasm. It has been claimed that clinical differentiation between simple cyst and renal neoplasm may be possible by observing the patient over a period of months for evidence of progressive change in the pelvic outline, such as might occur with neoplasm. The rate of growth of a hypernephroma, however, may be so slow that such differentiation is impossible. Because of the possibility of error in the clinical and urographic differentiation between renal cyst and neoplasm, surgical exploration usually is necessary.

In a recent review of 135 cases in which operation was performed for renal neoplasm it was found that

inaccurate interpretation of the urograms had been made in seventeen. In six, however, the diagnosis had been qualified as being either renal neoplasm or renal cyst, leaving eleven cases in which the diagnosis was definitely erroneous. A diagnosis of hypernephroma was made and simple cyst was found in two instances. A diagnosis of polycystic kidney was made in one case and it proved to be hypernephroma, in another case the diagnosis was reversed. Deformity in the urogram caused by cortical tumor and polycystic disease may be quite similar, and in doubtful cases the presence of abnormality in the pelvic outline of the second kidney usually will identify polycystic disease. In one urogram, made in a case of polycystic disease however, there was no evidence of deformity to be observed in the pyelogram made of the other kidney. In four cases the urogram suggested the presence of renal neoplasm and on surgical exploration the lesion was found to be extrarenal. Pressure and displacement from extrarenal tumor sometimes will cause abnormality in the outline of the pelvis suggestive of renal neoplasm. In one case the symptoms and apparent obliteration of the pelvic lumen suggested renal neoplasm, but on exploration a closed hydronephrosis was found. It may be difficult to identify the nature of an abdominal tumor when any visualization of the renal pelvis is impossible. The presence of shadows suggestive of calcification caused an incorrect diagnosis in two cases of hypernephroma. A circumscribed area of renal tuberculosis was found in one case in which there was little or no evidence of infection in the urinary tract. In another case exploration revealed a soft stone situated in the end of a calyx which had caused deformity of the pelvic outline suggestive of neoplasm.

**Excretory Urography**—The value of the excretory urogram in the diagnosis of renal neoplasm is not fully appreciated. It was first thought that its use in this field was limited and that a retrograde urogram usually would be necessary for accurate diagnosis. However, in thirty-five cases of renal tumor in which excretory urography was employed in the last two years we found that the evidence was sufficient to make a diagnosis in twenty-five. In the other ten cases it was necessary to make a retrograde pyelogram in order to secure adequate visualization of the deformity. Unless there is detailed visualization of the pelvis and calices in the excretory urogram it would be dangerous to assume that the possibility of renal tumor was excluded, and a retrograde urogram should be made. The increasing degree of accuracy in the recognition of renal neoplasm by means of excretory urography should warrant its routine employment in the differential diagnosis of abdominal tumors.

#### VALUE OF RADIOTHERAPY

Roentgen therapy in cases of renal neoplasm has been applied both before and after operation. Its value in postoperative treatment has not been very convincing. Although many of those patients who have lived three years and longer have had postoperative radiotherapy, the much larger number who have died within a year or two following operation in spite of radiotherapy makes the procedure of debatable value. In recent years, preoperative irradiation of the tumor has been urged by a number of observers. While our experience with such treatment has not been extensive, we have found it to be of greater value for tumors with tissue of embryonic origin than for adenocarcinomas.

It is of course necessary to wait two months following irradiation before surgical removal is attempted.

#### SUMMARY AND CONCLUSIONS

As an index to prognosis and in the interest of simplified terminology it would seem best to regard all malignant tumors of the renal cortex as carcinomas and to grade them according to the degree of cellular differentiation.

From a clinical point of view, carcinoma of the renal cortex may be divided further into two groups which have distinct clinical characteristics, namely, adenocarcinoma (hypernephroma) and alveolar carcinoma.

Although there may be various factors, such as metastasis, which can modify postoperative results, the prognosis usually will conform to the histologic evidence of malignancy.

Metastasis occurs most frequently with renal tumors of the higher grades of malignancy and may be present without causing clinical evidence. Lymphatic extension is a frequent occurrence. Metastasis is found most often in the lungs, rather infrequently in the osseous system. Although the progress of the disease in the presence of pulmonary metastasis may be delayed by nephrectomy and irradiation of the lungs, postoperative results indicate that the chance for recovery is so slight that operation is not justified. It is possible that the roentgenographic evidence of pulmonary metastasis in some of the few cases in which patients were reported as having recovered was incorrectly interpreted.

Calcification of tissues in cases of renal adenocarcinoma is a frequent occurrence and indicates a favorable prognosis. Urographic evidence of widespread involvement of all calices and of the pelvis indicates a high grade of malignancy and a guarded prognosis. The excretory urogram will give accurate information with regard to the presence of renal neoplasm in a high percentage of cases. Its routine use should be more frequent in the identification of abdominal tumors.

Although clinical data suggest that suprarenal elements may be included in some hypernephromas to account for the vascular manifestations such as hypertension and telangiectasis, neither chemical analysis of the tumors nor postoperative clinical data corroborate such an assumption.

While the size of the tumor alone has no bearing on the late postoperative results, nevertheless a large, fixed tumor, together with a short history and evidence of marked toxemia would indicate a bad prognosis and would accordingly render the advisability of operation questionable.

**Fuel Values of Foodstuffs**—The energy values of many of the proteins, fats and carbohydrates have been determined very accurately. Averaging the results for each group of foodstuffs, correcting in all cases for average losses in digestion, and in case of protein correcting further for the particular way in which it is burned in the body, we obtain the following physiological fuel values:

Carbohydrate	4 calories per gram	or 1 814 calories per pound
Fat	9 calories per gram	or 4 082 calories per pound
Protein	4 calories per gram	or 1 814 calories per pound

These values are intended to show the average amounts of energy actually made available to the body for each gram (or for each pound) of carbohydrate, fat and protein contained in the food. It will be noted that proteins and carbohydrates have, weight for weight, the same fuel value, while fat is a much more concentrated fuel, having two and one fourth times the energy value of an equal weight of protein or carbohydrate.—Sherman, H. C. Food and Health, New York, Macmillan Company, 1934.



## A SPECIAL FORM OF FUNCTIONAL PSYCHONEUROSES APPEARING IN AIRPLANE PILOTS

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The clinical material on which this study was based consisted of 163 unselected airplane pilots. Their ages ranged from 22 to 50 years inclusive, their flying experience from one to eighteen years and their total flying time from 400 to 5,680 hours.

The data presented were derived from three principal sources, namely, close personal observation of each individual for from six months to three years, annual and semiannual physical examinations for flying, and professional attendance on all accidents and illnesses occurring in this group.

## HISTORICAL

Among pilots of all countries involved in the World War there was an enormous percentage invalided because of functional nervous disorders. Probably the best description of these cases was presented by H. Graeme Anderson<sup>1</sup> of England in 1919. Anderson recognized and described the various neuroses that occurred and they were admittedly no different from functional neuroses in other branches of the service or those found in civil life. Owing to the fact, however, that his cases developed as a result of flying he coined the term "aeroneurosis" and grouped all functional nervous disorders occurring in aviators under that heading.

The remaining authors of that period who described the same types of cases agreed with Anderson on the nature of these disease processes but coined various other descriptive terms, among the most prominent of which were "aeroasthenia,"<sup>2</sup> "flying stress," aviator's neurosthema" and "staleness."

It is believed that Anderson's term "aeroneurosis" (aero, combining form from the Greek *αἴρ*, *aeros* air + neurosis, from Greek *νεῦρον*, nerve) though applied here to a distinctly different type of entity from those he described, is the most appropriate and will be used in this paper.

## SYNONYMS

"Chronic fatigue," "staleness," "aviator's stomach," "flying stress," "aeroasthenia," "flying sickness," "aviator's neurosthema" and "fatigue" are synonyms.

## DEFINITION

"Aeroneurosis" is a chronic functional nervous disorder occurring in aviators, characterized by gastric distress, nervous irritability, fatigue of the higher voluntary mental centers, insomnia, emotional instability and increased motor activity.

## ETIOLOGY

**A. Predisposing Causes**—1. Sex. Only male pilots have been observed. It is believed, however, that under the same conditions females, being relatively more unstable, would be more frequently affected.

2. Age. Age as such, is probably not an important factor except indirectly. Since the stress of flying is one of the fundamental causes of the disorder, it follows that it cannot occur until flying training has been

completed, which is usually not under the age of 22. Even then, in my experience, there is an interval of years before the disease makes its appearance. In the series studied, the earliest case found was that of a pilot, aged 27, after four years of flying. From that age on, the incidence rapidly increased through the years of greatest stress and then gradually increased further in the upper age brackets, as shown in table 1.

The complete explanation of this age incidence is given later, and it will be merely noted that it depends principally on those economic, social and biologic changes that come about usually in the age period 25-40.

3. Build. All of the cases noted, except one, occurred in men of a medium or slender build. This, however, is of no significance, since it is a characteristic of the group that the conformations were predominantly of that same type.

4. Heredity. Strictly speaking, heredity is not a factor. By a process of rigid selection by trained examiners all candidates for flying training who show an unsatisfactory heredity are rejected. Furthermore, those who present a satisfactory family history but who for any reason do not possess a marked nervous stability are quickly detected in training and eliminated.

Relatively speaking, however, there is in every aviator some instability or otherwise he would be nothing more or less than a clod. On this basis it has been found that those with the greatest inherent instability are the most affected.

TABLE 1—Frequency of Occurrence by Age Groups

Age Groups	Total Number	Cases	Per Cent
22-29	135	4	3
30-39	20	10	50
40-49	7	4	57
50-59	1	0	0
Total	163	18	11.04

ing more or less than a clod. On this basis it has been found that those with the greatest inherent instability are the most affected.

5. Social Status. Since the group under consideration is by selection and occupation of the same general social status, it is impossible to do more than note this and to make comparisons within the group in which there are variations.

In this series all the men were above the average in intelligence, lived in comfortable surroundings and engaged in a highly dangerous occupation.

Of those affected four, or 18 per cent, were single, while eighteen, or 82 per cent were married. Of those married, three, or 17 per cent, had no children, while fifteen, or 83 per cent, had one or more.

Economically, there was sufficient income for the comforts of modern life. The fact that pay increased with years of service could not be particularly significant, owing to the fact that the expense of living increased in proportion to the increase in members of families.

6. Individual Personality. In all cases observed there were certain striking personality characteristics common to the group. As already mentioned, there was a relative instability as compared to unaffected individuals. They were without exception predominantly extravertive. Professionally they constituted the finest type of pilot, having a great amount of courage, alertness, energy and vitality.

Personally, they were intense, generous, warm hearted, friendly, devoted to duty and family and, in general, a high type of individual. Their actions were

<sup>1</sup> Anderson, H. G. *The Medical and Surgical Aspects of Aviation*. London: Oxford Medical Publications, 1919.

<sup>2</sup> Wells, H. V. *The Flying Service from a Medical Point of View*. Roy. Nav. Med. Service, 1, 55-60, 1915. *Some Airplane Injuries and Diseases with Notes on the Aviation Service*, ibid., 2, 65-71, 1916.

frank and vigorous, their feelings ruled the intellect more than good judgment, and their feelings were devoted to those about them

**B. Exciting Causes**—Under this heading are included those factors which are considered to be a cause of the actual breakdown. In addition, a brief consideration of two other factors is introduced here for the sake of completeness. The first one deals with the possibility of debilitating states as an exciting cause as so frequently happens in the other neuroses. The second one deals with a factor that may have some influence but, owing to the lack of clinical pathologic proof, it is mentioned only as a field for further research.

**1. Debilitating States** As might be expected, considering the close medical supervision and frequent physical examinations pilots are kept remarkably free from debilitating conditions. The use of intoxicating liquors and tobacco among those affected was similar to that among those unaffected and is not considered to be of any significance. Focal infections were carefully watched for and treated or removed immediately on detection. In this series, therefore, it is possible to state definitely that debilitating conditions were not an exciting factor.

TABLE 2—*Harmful Physical Agents and Their Effects*

Physical Agent	Primary Effect	Secondary Effect
Carbon monoxide poisoning	Anoxemia	Nerve tissue destruction
Oxygen want	Anoxemia	Nerve tissue destruction
Pure oxygen inhalation	Irritation, congestion and edema of lungs Irritative pneumonia	Anoxemia and nerve tissue destruction
Head trauma	Concussion, laceration, edema and hemorrhage of the brain	Nerve tissue destruction
Centrifugal and centripetal forces	Pressure, congestive edema, hemorrhage of brain	Nerve tissue destruction
Speed	Not known	Not known
Barometric pressure changes	Not known	Not known

**2. Physical Agents** I believe that the disease under discussion is partially an organic as well as a functional nerve disease. While there is strong presumptive evidence to this theory, it is deemed advisable to refrain from making definite statements until clinical or pathologic proof is available.

In table 2 is a list of the harmful physical agents to which pilots are frequently subjected and the primary and secondary effects. All the effects noted have been shown to occur under similar conditions of exposure, both by clinical pathologic observations in human beings and by animal experimentation.

**3. Emotional Stress** Emotional stress is considered the principal etiologic exciting factor. A review of the existing causes of emotional stress among pilots at once discloses their number and intensity.

**(a) Biologic Changes** Every normal human being passes through certain natural biologic phases of life which exert a marked influence on his behavior.

In youth man normally is possessed of an abundance of vitality and vigor, has a zest for adventure, shrinks from responsibilities, is fired by enthusiasm and shows a reckless courage born of inexperience. As youth passes, he grows more conservative, establishes a home, creates a family, assumes responsibility and girds himself for the struggles of self and race preservation and to acquire economic and social security.

He anticipates a slow but steady advancement in his chosen profession with a corresponding increase in

compensation until retirement or disability places him on the retired rolls.

Few pilots are able to pass through this normal course of events but are thwarted again and again by circumstances over which they have no control. How and why these normal biologic processes are disrupted will be shown in the discussion to follow.

**(b) Physiologic and Physical Changes** Regulations specify the physical qualifications for pilots. These qualifications are detailed and rigid and they demand almost perfect physical conditions for compliance. They serve as a guide in the selection of cadets for flying training and apply equally to the graduate pilot. The pilot of 60 is expected to qualify under the same standards as the lad of 20. Obviously, physiologic changes intervene which make it impossible for the older men to pass their physical examinations. Pilots early in their service begin to realize that their careers are in jeopardy. Every minor accident or disease is a potential source of flying disability, every minor physical defect a source of constant worry, which reaches its climax twice yearly at the annual and semiannual physical examinations.

It is true that waivers are normally granted for some of the minor defects, but this is considered only a stay of execution, a reprieve for a limited time only. It is not the wrecking of the career that we are concerned with here but the fear, the uncertainty, the social and economic insecurity which hangs, often for years, over the pilot's head and adds a heavy burden to his cares and depletes his nervous resistance.

**(c) Ego Deflation** The World War changed the status of airplane pilots from crazy fools to national heroes. The public changed its attitude from one of curiosity and scorn to one of honor and respect. Thus for the first years the military pilot had his ego tremendously stimulated. Gradually, however, aviation has become more commonplace. No longer do people rush out to see an airplane. Aviation has become an industry instead of an exhibition. Flying has become an occupation instead of a stunt. Aviators became human beings instead of gods.

This slow but definite change has deflated the pilot's ego and thereby created a further emotional stress. There is the constant attempt to regain face, to reclaim and hold a fading dream. It was this stimulated ego, which lasted for several years after the war, that accounts for the fact that "aeroneurosis" is of rather recent origin. It was, in a sense, the reward or compensation for the risk involved.

Another factor affecting the ego appears at about the age 30 to 40, or after about ten to fifteen years of flying. As is common in many pursuits, such as athletics, fliers reach their peak of efficiency early in life. Unlike the similar pursuits that are well established and in which a decline is anticipated early, aviation has no such precedent. Pilots anticipate aviation as a lifetime profession and the knowledge that finally younger and less experienced pilots are outperforming, outmaneuvering, outlasting and outdaring them is indeed a bitter blow to the once sustaining ego. Then again all those factors which are likely to result in the grounding of the pilot have their ego deflating influences. The grounding of a pilot carries with it a certain loss of caste or face, a partial loss of compensation, lower standards of living, social insecurity and, in general, a train of events which by their very nature depress the ego. Here again we are concerned only with the emotional stress engendered.

(d) *Economic and Social Security* Normally flying pay provides a sufficient income for the average individual as long as it continues, but any influence which jeopardizes that pay creates at once in that individual a marked sense of economic and social insecurity. This comes about by reason of the fact that, once established on flying pay, the average pilot makes certain commitments based on his anticipated income. Consequently, when his income is reduced, he necessarily must lower his standard of living, he loses a certain amount of professional and social caste, his ego is deflated, and he is left with no recompense for the added hazards of disability or death which he had successfully endured. The net result of his extra risks is to escape with heavy commitments on a reduced income at the time of life when most men anticipate an increased compensation and expect to be at the peak of their efficiency.

Normally the first change to direct the individual's attention to his uncertain economic position is the development of minor physical defects or deviations which suspend him temporarily from flying. It is then that he realizes the problem before him. No longer is physical perfection a gift of nature but a condition to be maintained with difficulty, if at all.

The second change that comes about is the added responsibilities assumed when a home is established and a family created. Here the relative conservatism of advancing age adds to the problem, for at this stage there is something more vital at stake. Not only must the individual provide for his own welfare but now there are others to be protected and provided for. The individual's instincts of self preservation may be repressed, his security may be ignored, but the responsibility to others is a duty which he faces with no attempt to repress or avoid but with a determination to provide an adequate solution. By their very natures these individuals are prone to be relatively immune from selfish personal natures, at the same time their consideration for others is developed to a marked degree.

(e) *Psychic Trauma* There are few occupations which so frequently subject those engaged to such marked subjective and objective psychic shock as does aviation. Few pilots pass many years without one or more serious airplane accidents. Whether or not there is physical injury, a crash always produces profound psychic trauma. The impact of a swiftly moving airplane with the ground or another airplane, in addition to the sudden deceleration, floods the nervous system with a deluge of efferent impulses and sensory impacts of terrific volume. The ultimate effect is not susceptible of objective analysis, but there can be no doubt as to the damaging effect to the whole nervous system.

In addition to being subjected to airplane crashes, pilots are frequently a witness to the crashes of others. Crashes undoubtedly produce the most violent known deaths, and rescuers usually find a mangled corpse with brain tissue spattered over the instrument board, naked bones projecting through flesh, and the body a jelly-like mass confined to shape only by the clothing. Frequently gallons of spilled gasoline turn the twisted mass of wreckage into a concentrated hell of searing flame while the victim writhes and curls amid the stench of burning flesh.

To witness one of these scenes is never to forget it. To witness one and fly one must forget it, repress it, and thereby a new conflict arises.

(f) *The Instinct of Self Preservation* The instinct of self preservation, being the most fundamental and deep seated of all instincts is capable of arousing the

most profound emotional disturbances. These emotional disturbances, other things being equal, are directly proportional to the degree of the hazard and the length of time endured. It does not require an actual hazard to produce these disturbances, but they are as readily produced by instinctive fears for which, in reality there is no basis.

(1) *Fear of loud noises* It has been found that loud noises are one of the two external agents which are capable of producing manifest fear in young infants. That this fear is instinctive and has a powerful effect on our reactions is demonstrated by the universal habit of every one jumping and showing a startled facial expression at any sudden unexpected loud noise despite the fact that no one has ever been injured by a noise.

It is therefore probable that aviators, subjected as they are to the extreme noises of high-powered unmuffled motors, have to repress this normal instinctive fear, which adds its load to the burden of the nervous system.

(2) *Fear of falling* Fear of falling is the second of the two external agencies capable of producing manifest fear in young infants. Added to the fact that it is an inherited instinct, it has for a background in most individuals, especially in childhood, a long painful series of experiences to prove its worth. Thus from experience and instinct all normal individuals have a marked fear of high places and of falling. It is this fear which to a great extent determines whether or not flying cadets complete their flying training. Those who are unable to suppress this fear are tense on the controls and never are able to fly well and are rejected. However, the repression of this fear does not in any sense relieve the nervous system of that burden but actually intensifies it as the conflict between desire and conduct rages in the unconscious.

(3) *Accident hazards* Aviation is recognized as a hazardous occupation. This hazard fluctuates from year to year but in general maintains a rather constant level. The improvement in materials and design are about equally offset by increased speed and performance. In the group under consideration there were for the three-year period ten deaths, one from natural causes and nine from airplane accidents. In other words, each day these pilots were nine times more apt to die from an aircraft accident than from natural causes. Furthermore, since the average flying time for the group was about thirty hours a month, or one hour a day, their hazard per hour while flying was nine times twenty-four hours (per day) or 216 times the hazard per hour while not flying.

In addition to the deaths, there were nineteen emergency parachute jumps, seven collisions in midair, and seventy-seven aircraft accidents of various degrees producing injuries to thirty-nine individuals.

Since the instinct of self preservation is the dominating influence of our existence, it is not difficult to realize the stress to which these pilots are constantly subjected. To carry on successfully they must repress this instinct into the unconscious, where it remains hidden from view but nevertheless constantly exerts its emotional influence.

(g) *Fatigue of the Brain Centers* The military pilot lives in an environment containing all the classic elements for incurring mental fatigue. Reviewing the psychologic causes of fatigue as quoted by others, the one common, all-important feature seems to be mental conflicts.

The concentration of attention required by his occupation is probably unsurpassed by any other. In addition to this, his mind is beset to an abnormal degree, consciously or unconsciously, with the following vital problems:

- Thwarted ambitions
- Biologic pattern distortion
- Disqualifying physiologic changes
- Disqualifying physical changes
- Disqualifying nervous and mental changes
- Ego deflation
- Economic insecurity
- Social insecurity
- Psychic trauma
- Self preservation

Not only do these various problems exist but to the average pilot they appear inevitable. The constant endeavor to make the proper adjustments is indeed a task to test the fiber of the strongest intellect.

#### SYMPTOMATOLOGY

All pilots are under constant observation by trained flight surgeons and are given a thorough physical examination at intervals of from one to six months. The first definite evidence of any defect whether physical or mental requires the grounding of that individual and the prompt administration of remedial measures. It is thus obvious that any disease process which is amenable to treatment is not allowed to progress through its natural course to a final termination. For this reason it is to be understood that the data presented here do not pretend to describe the disease process throughout its natural course but probably only its initial stages.

This close observation of pilots no doubt explains why an interval of years has passed before the accumulated data crystallized into the conception of new clinical entity. In my experience it was in pilots who had been on prolonged detached service away from proper supervision that the most advanced cases were observed and first gave a clue to the true nature of the disease.

#### CLINICAL HISTORY, MODE OF ONSET

Just when to fix the exact time of onset of this disease in most cases is extremely difficult, but it was noted that it invariably followed a period of unusually heavy flying.

The patient himself, at first being unaware of any nervous disorder, does not connect it with any definite date or event. It is probable that the change from normal is so gradual that the actual onset predates by several weeks or months the attention of the patient or the surgeon. A searching inquiry usually reveals the rather constant history of what is probably a recurring gastric neurosis, sometimes dating back for several years before the appearance of other symptoms.

#### SUBJECTIVE SYMPTOMS AND PHYSICAL CHANGES

As may be anticipated from the functional nature of the disease, symptoms may appear in any system of the body. In contradistinction to most functional disorders, however, this disease process exhibits rather remarkably uniform symptom patterns so far as they have been observed. It was noted that there were certain features common to all. The disorder was essentially subjective with no objective evidence of disease (except as noted later). There was evidence of irritable fatigue of the higher brain centers accompanied by increased motor activity. There was finally a disagreement between the symptoms complained of and the conduct of the patient, which further emphasizes the emotional nature of the disorder.

#### SYMPTOMS RELEIABLE TO THE CEREBROSPINAL NERVOUS SYSTEM

1 *Subjective Symptoms*—(a) *Mental State* The patient is restless and irritable, and his nerves are on edge. There is a tendency to resist the idea of illness but with usually a complaint of overstress and overwork. Everything and everybody acts as a source of irritation and in his home the family suffers from his pent-up feelings. The patient is apprehensive for the future and miserable in his environment, but he refers all this to conditions outside his body.

One of the most constant complaints is of insomnia or light and fitful sleep disturbed by unpleasant dreams or actual nightmares. The latter are occupational in character and usually concern flying with disastrous results. An unusual feature frequently found, which is probably a result of the dreams, is the extreme depression on awaking in the morning, with an accompanying profound dread and apprehension. For this reason patients appear most unwell in the early part of the day and improve during the afternoon until evening, when they regain a less depressed but more irritable mood.

There is some diminution of attention and difficulty of concentration. In most cases there is developed a mild paranoid personality, the patient feeling that he is being treated unjustly and that there are deliberate attempts to discriminate against him. This is especially true with regard to duties assigned and as a result there is a distaste for his occupation.

(b) *Projection Pathways* Since headaches are frequent among pilots from ill fitting goggles and helmets, carbon monoxide poisoning, anoxemia and blocked sinuses, it is rather difficult to evaluate this symptom. In my opinion it occurs more often than normally among these patients, especially in the morning, and is due principally to lack of adequate rest. There were no complaints of tenderness of the scalp or along the spine. Skin sensibility was normal with no complaints of numbness, tingling, heat, cold, sweating or anesthesia.

(c) *Eye Symptoms* Continued use of the eyes for reading often brought on rapid fatigue with burning and smarting of the conjunctiva and blurring of vision in bright lights. Often there was itching of the lids and a feeling of dryness of the eyeballs.

(d) *Ear Symptoms* All pilots after a few years' service acquire a variable diminution of hearing. This serves to diminish any hyperesthesia to sound and protects to some extent against auditory irritations. There seems to be a tendency for balance tests to show an increased unsteadiness, and whirling tests increase the nystagmus time and past-pointing.

(e) *Disturbances in the Organs of Smell and Taste* There were no symptoms elicited for these systems, although some patients reported a distaste for food.

(f) *Muscular System* Despite the frequent references in the literature to this syndrome as a chronic fatigue, as far as the voluntary musculature is concerned the opposite condition prevailed. Regardless of the loss of rest or mental weariness, there was always a ceaseless activity. A great amount of athletics was indulged in and mostly those of a strenuous nature. Movements were almost continuous and of a restless type and any activity was welcome. No complaints of unnatural muscle fatigue, cramps, tenderness, spasm or twitchings were noted. The one possible exception to this was the manifest deviation of the eyes as measured on the phorometer, and that this was of muscle and not nervous origin has not been proved.

2 *Physical Changes*—As may be expected, there were few objective symptoms demonstrated. At this point, however, it is wished to call attention again to the possibility that there might very well be considerable organic destruction. I have clearly demonstrated by animal experimentation that conditions to which pilots may be exposed can produce severe central nerve lesions. However, until this has been definitely supported by clinical pathologic observations it will be mentioned only as a field for further study.

(a) *Mental State* There was a peculiar analogy between the objective mental state of aeroneurosis and that seen in pneumonia (anoxemia). The mind was apprehensive, alert, anxious and restless. The subjective mental state was more apparent than real, for if called on the patient could by effort carry on normally.

(b) *Projection Pathways* The eyes were negative except for the apparent weakness of the extrinsic muscles. Examination of the eye and appendages during complaints of fatigue and irritations usually failed to show any abnormality. The field of vision and color remained normal as did the ocular fundi. There was often nystagmus in the lateral positions, however, and a coarse tremor of the closed lids.

*The Ear* Thickening of the membrana tympani could be accounted for as occupational. There were no other abnormalities.

*Smell and Taste* The nose was apt to show evidence of chronic irritation, but this was occupational and of no significance.

*Sensory Skin Disturbances* No cases of sensory skin disturbances were observed.

*Muscular System* Muscle sense and sense of position remained normal, with no ataxia, incoordination, hypertrophy or atrophy observed.

3 *Special Tests*—The tendon reflexes had a tendency to be somewhat exaggerated, but not routinely so. Corneal, pupillary and skin reflexes remained normal.

4 *Symptoms Referable to the Autonomic Nervous System*—It has been established by researches of Cannon and others that the emotions, acting through the sympathetic nervous system, have a profound effect on those organs supplied by that system. Furthermore, it has been found that these organs are affected in the order of their primitive origin, the gastro-intestinal being followed by the cardiovascular, respiratory and genito-urinary in order.

The reactions that take place are designed to place the organism in the best condition to defend and maintain life and are thus dynamic reactions, with every system mobilized and ready for instant combat.

This continual excess flow of energy constitutes a drain on the organism which it is impossible to replace and thereby a vicious circle is established, ultimately producing a breakdown of the normal functional processes without causing organic destruction.

5 *Subjective Symptoms and Physical Changes*—

(a) *Gastro-Intestinal System* The universal presence of gastric symptoms in "aeroneurosis" was a testimony to the intense emotional factors involved. While this symptom was the one most frequently complained of, it seldom was the cause of any great apprehension to the patient. Whether this was a result of the general knowledge that pilots are subject to "aviator's stomach" or to the fact that pilots were reluctant to divulge any defect that might jeopardize their flying is not known. By careful inquiry it was established that this was always the first subjective symptom recognized as such.

Gastric distress appeared from one to four years prior to the recognition of the fully established disease process and was a recurring episode brought forth by periods of hard flying, disappearing in between times only to reappear again. The complaints of gastric disturbances were remarkably constant and consisted essentially of a gnawing pain in the epigastrium not unlike the hunger pains of ulcer. There was no loss of appetite, nor were there complaints of nausea, vomiting, eructation of gas or distention.

Later in the course of the disease there developed a hypermotility of the intestine, with gurgling of the contents and sometimes a mild watery diarrhea. As might be expected, no organic changes in the gastro-intestinal tract could be demonstrated. The hypermotility of the stomach and intestine could readily be observed by means of the roentgenograph and the fluoroscope. Inspection of the stools showed a loose consistency in some cases with gross evidence of undigested particles of food material.

(b) *Cardiovascular System* There were no specific complaints regarding this system except occasionally a consciousness of the heart beat or throbbing of the carotids at night, although these were recognized as such and caused no undue apprehension.

The objective manifestations in the mild cases were approximately normal but in the few advanced cases observed it was noted that there was a comparative increase in the heart rate, a lowered diastolic and increased systolic blood pressure, lowered exercise tolerance and a tendency to neurocirculatory asthenia.

(c) *Respiratory System* In this system even the advanced cases showed no evidence of abnormality. Breathing rates and depths were normal and cyanosis was not observed.

(d) *The Genito-Urinary System* There were no complaints of this system and no variations from the normal were found. In keeping with the general increased activity it was found that there was a corresponding increase in sexual functions.

(e) *Laboratory Examinations* Blood counts and hemoglobin estimations were normal and presented no characteristic picture. Wassermann and Kahn reactions were negative. The urine was usually increased in amount and of low specific gravity. Casts, albumin and sugar were not normally found, and organic and inorganic compounds were present only in the usual amounts. The stools were usually normal but occasionally contained particles of undigested food, particularly the proteins.

#### DIAGNOSIS

The diagnosis of "aeroneurosis" in even a moderately advanced case is not difficult. That this is true is evidenced by the fact that it has been recognized as an entity by most authors even though there has never been a previous clinical description of the disease. A complete review of the current literature fails to show a single instance of the known functional nervous disorders being described in airplane pilots, while at the same time there has been a constant reference to this syndrome under an arbitrary designation which most nearly described it to the author.

The occurrence of a functional gastric disorder in pilots of several years' experience combined with a general irritability and increased motor activity with subjective complaints of insomnia and mental fatigue is usually sufficient for a tentative diagnosis. A positive diagnosis can be made only after ruling out the two following conditions:



1 *Distinction from Other Organic Disease*—In my cases the only organic diseases that might have caused any confusion were gastric and duodenal ulcer or tumor. These conditions should always be ruled out by gastric analysis and roentgen examination.

Exhausting and wasting diseases as well as intoxications and other debilitating conditions should cause no difficulty because of the increased activity in the cases of "aeroneuroses." Organic disease of the nervous system should be detected by proper physical examination and serologic tests.

2 *Distinction from Other Functional Nervous Diseases*—The essential differentiating factors in "aeroneurosis" from other functional nervous disorders are as follows:

In hysteria the personality is distinguished by an inborn instability with short explosive outbursts and a tendency to self-seeking satisfaction based on a complacent observation of the disability.

Neuresthenia is characterized by a motor fatigue, which is readily distinguished from the activity of "aeroneuroses."

Psychasthenia, of course, concentrates its symptoms on the psychic side and develops in an altogether different personality.

TABLE 3—Other Nervous and Mental Diseases

Disease	Number of Cases	Years of Service	Age at Onset
Neurasthenia	1	5	26
Anxiety neurosis	2	{6 months 2 years	{23 22
Hysteria	1	3	24
Hypochondria	1	3	26
Dementia praecox	1	0	21
Malingerer	1	4	26

The first stages of dementia praecox and cyclothymia may present some difficulties, but a period of observation should make the differential diagnosis simple.

#### COMPLICATIONS AND SEQUELAE

As explained under Symptomatology, the cases under consideration were treated early in the disease and not allowed to progress. No complications were observed and it is not believed that the condition is serious with regard to prospects of life. However, the effect is such that flying becomes dangerous and all such patients should be grounded.

*Association with Other Diseases*—While the group of cases under consideration here were free from other diseases and maintained in otherwise excellent health, there is no reason to believe that they could not be associated with other disease processes. It is especially likely that focal infections or other debilitating disease could act as an exciting factor.

It is interesting to note that those individuals who suffered from other nervous and mental disorders were entirely free from symptoms of "aeroneurosis" and all developed earlier in time both as to age and service. The other nervous and mental cases and the number of each in the observed group of 163 are given in table 3.

#### CLINICAL VARIETIES

No clinical varieties of the disease could be distinguished. In view of the fact that this is a functional nervous disorder the uniformity of the symptoms and other manifestations is rather remarkable. It might well be that cases allowed to progress would finally show considerable variation, but until that has been observed this remains pure speculation.

#### TREATMENT

1 *Prophylaxis*—"Aeroneurosis" could probably be eliminated by a careful selection of candidates for flying training. The personalities and characteristics of those susceptible having been determined, it is believed that they are susceptible of identification and elimination at the time of application for examination.

This simple expedient, however, has the distinct disadvantage of depriving aviation of those who are acknowledged to be the highest type pilots. The problem resolves itself into a question of whether it is more desirable to select the better pilots who break down after ten or fifteen years' service or poorer ones who are more durable.

Assuming that it is highly desirable to retain the better type of pilot, it becomes necessary to determine and remove the causative factors in aeroneurosis. As already noted, the principal causative factor was profound emotional stress produced principally by accident hazards and social and economic security. The former is an inherent characteristic of aviation and in the present state of our knowledge is not amenable to regulation. The latter, while not under the control of the medical profession, is a direct responsibility of the medical profession and as such should be subject to proper regulation for the protection of the individual and of the flying public.

Hershey,<sup>3</sup> in discussing the treatment of functional neuroses, says "The first step in the treatment of these cases consists of discovering the cause of the conflict. If the conflict is based on a real situation which does in fact jeopardize the social or economic security or arouses the instinct of self preservation then, while it may be possible to temporarily get the patient symptom free, it is never possible to get a permanent cure until the cause of the conflict has been removed or has been adequately compensated for." This finding, based on an extensive clinical experience is further borne out by Wright,<sup>4</sup> who has found that "among a large series of commercial pilots nervous disorders are infrequent among pilots who receive an adequate income and almost all cases that have developed were observed in those individuals who received inadequate compensation for the hazards endured or whose positions, and consequently their economic state, were insecure."

From the foregoing and my experiences with "stunt" pilots, it is well established that the emotional stress of flying hazards can be offset by suitable compensation, either ego stimulating or monetary. Since modern commercial aviation lacks any great amount of ego stimulation, it remains to establish some standard to determine at approximately what point compensation overcomes the effect of the accident hazard.

For the group under consideration, it has already been noted that, as compared to ground personnel, where the hazard is 9 to 1 the compensation is 15 to 1. In Wright's<sup>4</sup> series of cases it was found that, when the compensation was between 2 and 3 to 1, no difficulty was experienced. Therefore it may be assumed that flying pay equal to three times the normal for equivalent ground personnel is adequate where the fatality rate is nine times as great. Expressed mathematically:

$$\text{Flying pay} = \frac{\text{Flying hazard}}{3} \times \text{ground pay}$$

The economic and social insecurity among aviators seems to be due principally to the fact that usually during middle life, when their social and family respon-

<sup>3</sup> Hershey, Lynn. Personal communication to the author.  
<sup>4</sup> Wright, H. B. Personal communication to the author.

bilities are the heaviest, they are removed from flying and forced to accept a minor ground position on greatly reduced pay. Whether or not this actually happens is of no great importance, since it is the years of uncertainty preceding this period that produces the emotional stress and hence the nervous disorder. To create for these individuals a proper economic security, nothing would appear more reasonable and effective than a modification of the present system employed in any other occupational disability. The pilot who is grounded from flying but otherwise fit should be given a flying disability retirement and allowed to assume an executive or administrative ground position. It is believed that this plan, in conjunction with adequate pay for the risks involved, would allow the majority of pilots to pass through their flying career free from aeroneuroses.

In actual practice, the prophylactic measures adopted were those calculated to provide for good health, pleasant environments and active recreations. Special attention was devoted to the elimination of all possible sources of mental irritation and worry.

**2 Active Treatment**—In the active treatment of the cases considered here, all the usual measures were given a fair trial. Diets, rest, hydrotherapy and various psychoanalytic maneuvers were all of no apparent benefit. Complete removal from the environment in some cases produced marked temporary improvement provided it involved no economic loss to the individual, in which event no improvement or an aggravation occurred. In those cases in which an improvement did occur it proved to be only temporary, for after three months' to a year's duty the attack invariably recurred, usually more severe than the one preceding. It is from this experience that prophylactic rather than curative measures are considered to be of paramount importance.

**3 Final Disposition**—Based on the inadequate and unsatisfactory methods of treatment available to the group discussed here, four of the eighteen original patients have been removed permanently from flying, one by death in an aircraft accident, one by retirement for physical disability and two because of aeroneurosis. Of the fourteen still on flying duty, three are considered ready for retirement as totally permanently disabled, four are considered unfit for flying duty but fit for ground duty, and the remaining seven are considered able to remain on flying duty under close supervision.

The controlling factor in the final disposition of these cases should be the welfare of the individual and the protection of the flying public. Those who have had several recurrences, each more severe than the preceding one, and who are reduced to a state of unfitness for administrative duties should be permanently retired. Those who have had several recurrences and are kept symptom free only by grounding should be permanently grounded. Those who have no more than the initial symptoms, have had no more than one fully developed attack, or who have recovered from an attack and remained symptom free during a six months period of flying should remain on flying only under the close continuous observation of a surgeon.

#### PATHOLOGY

Whether or not actual organic nerve lesions can be demonstrated in cases of 'aeroneurosis' must for the present remain pure speculation. That this important aspect has not been fully investigated is due to the difficulty in securing suitable tissue sections. In the

crash cases examined, the trauma had so disorganized the brain tissues that the detection of other old lesions was found impracticable. As mentioned before however, experimental animals exposed to conditions similar to those endured by pilots have shown in many instances congestion, edema, hemorrhage, and even destruction of brain tissue.<sup>5</sup> These lesions were those normally found in cases of accidental death in man from the same physical agents and varied only in degree. The particular pathologic condition in each instance was dependent on whether anoxemia, carbon monoxide poisoning, trauma or centrifugal force was used and the lesions produced are too well known to require repeating here.

In any event, since the presence of actual pathologic changes could only be one of the contributing factors in this disease process the question will be left for future investigations to answer and I shall proceed to a discussion of the pathogenesis.

In considering the possible theories to explain the pathogenesis of "aeroneurosis," one is at once struck by the number of those which can unquestionably be discarded. Focal infections, wasting disease, debilitating states, exhausting fevers, toxins, intoxications, inferior constitutional states, hereditary taints, defective mentality and emotional instability can be eliminated immediately. There remains then only a psychogenic theory to explain the relationship between the etiology and the symptomatology. Therefore I will briefly reconstruct again the situation as it normally develops and trace by logical steps the mechanism of the defense reactions and on through the development of the disease process.

When an individual enters on his career as a pilot he is essentially physically perfect, with a high degree of intelligence, filled with ambition, possessed of great natural courage, fired with enthusiasm and devoted to duty. The irresponsibility of youth, the pride of accomplishment, the zest of living and the ignorance of inexperience carry him blithely through the first few years. Gradually, however, as time passes physical perfection is replaced by physical defect and physiologic change, ambition by apprehension, reckless courage by cool judgment, irresponsibility by responsibility, youth by age, inexperience by experience, and pride by ego deflation. In other words, there has been created a situation in which instinctive desires conflict absolutely with social regulation.

Primarily there is the powerful instinct of self preservation buried in the unconscious which strives to project itself into the conscious. This conflict rages continuously and, unbeknown to the individual, produces deep emotional reactions. Even though he is protected from mental pain by this repressed emotion, which allows him to carry on free from conscious fear, there is in this situation much material for intellectual insult. A simple comparison of the ratio between the accident hazard and the monetary compensation with regard to either commercial fliers or officers of the services offers nothing to the individual but the obvious conclusion that his worth is lightly valued. The accompanying ego deflation, resentment and sense of injustice add their burden of emotional stress. The higher the intelligence, the more this holds true. The high type appreciates the value of safety, the moron is unconcerned.

The many avenues of escape from this situation are naturally obvious to the individual but to this person-

ality type the price is too high To quit is unthinkable, to avoid the issue spells weakness, to accept emotional subjective equivalents of disease is to admit instability, and to shrink from responsibility is to invite social and economic insecurity

The latter, the almost inevitable social and economic insecurity, also is a situation capable of arousing great emotional disturbances To a great extent economic security or advantage relieves other stresses and acts as a prophylaxis against breakdowns Even fear may be overcome by adequate compensation, either monetary or ego stimulating, acting to repair the insult to the nervous system The lack of it only adds to the insult and further depletes the nervous mechanism This situation offers no certain means of escape and the anticipation may for years produce a deep anxiety and apprehension not only for the individual's own welfare but on account of all those dependent on him

The third situation calculated to produce a conflict between instinctive desires and social regulation consists of all those factors which concern the individual temperament These are principally the thwarted ambitions, ego deflation, loss of caste and all those items of importance to the proper maintenance of self esteem, high morale, mental peace and nervous stability

Thus these individuals are beset with a myriad of profound emotional stresses, some repressed, some clear to the intellect, all capable of producing marked reactions It remains then to show by what mechanism these forces are responsible for the symptoms produced

As noted before, it was first shown by Cannon and others that the emotions are capable of producing marked physiologic reactions This process is an inherited characteristic which comes into action whenever the maintenance or defense of life is endangered It occurs as a function of the sympathetic nervous system, which, when affected by the various unpleasant emotions, mobilizes the bodily resources as a means of preparing for combat or flight Each system of the body maintains itself at its highest pitch of efficiency to contribute its share in the defense of the organism The heart speeds up and the blood pressure rises to nourish the tissues better The respiratory apparatus increases the lung ventilation to supply a rich oxygen mixture to the blood The gastro-intestinal tract becomes hyperactive to prepare food for the body utilization The brain and nervous system stand alert and ready, actively guiding the maneuvers of the battle and acting for long periods without adequate rest, facing the situation squarely and striving for an adequate solution to the problem As long as the stress continues, the outpouring of the excessive energy goes on and the normal processes of conservation and repair are abandoned Eventually the physiologic reactions are brought to the attention of the individual and can be observed and measured by objective methods The nervous reactions are those of depletion of the higher centers Both reactions are free from the deviations of somatic or nervous defect, for in these cases there are no doubts and hesitation as in psychasthenia, no quitting under the guise of organic disability as in neurasthenia no infantile reactions of hysteria, or none of the obsessions or mental inamias of the anxiety states The victim stands firm and immovable but is worn down by irresistible forces In brief, the pathogenesis of 'aeroneurosis' consists of profound emotional disturbances, long continued, producing manifest hyperactive physiologic responses and higher nerve center depletion, the latter unaccompanied by abnormal deviations

## CONCLUSIONS

From a study of the functional nervous disorders occurring in 163 unselected airplane pilots over a period of three years, it is concluded that

1 Of the group studied 11.04 per cent suffered from a special form of the psychoneuroses, which affected 3 per cent of those in the age group 22-29, 50 per cent of those in the age group 30-39, and 57 per cent of those in the age group 40-49

2 The disease is a chronic functional nervous disorder, classifiable as a new type of the psychoneuroses A distinctive nomenclature being required, the term "aeroneurosis" is suggested

3 The principal etiologic factors are accident hazards, economic and social insecurity, and possibly nerve tissue destruction

4 The cardinal symptoms are general irritability, gastric neuroses, insomnia, motor hyperactivity, and depletion of the higher mental centers

5 Adequate treatment requires, in addition to the usual therapeutic measures, administrative changes to provide adequate compensations and economic and social security

6 The pathogenesis consists of profound emotional stresses, long continued, producing a physiologic hyperactivity and a depletion of the higher nervous centers

Wright Field

## SCARLET FEVER IMMUNIZATION DURING A SCHOOL EPIDEMIC

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AND

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During the winter of 1935 an epidemic of scarlet fever occurred among the students of the School of Agriculture, in which we reported an epidemic of scarlet fever thirteen years ago.<sup>1</sup> The enrolment of the school at the time of this recent epidemic was 317 boys and 119 girls, practically all of whom lived in dormitories on the campus. The first case of scarlet fever appeared on January 15. The usual control measures were immediately applied, but the disease continued to spread. In view of this it was decided to resort to immunization in the hope of controlling the epidemic. Active immunization was employed on a large scale and passive immunization in a few individuals. The results of the passive immunization were discouraging but the occurrence of new cases of scarlet fever declined abruptly after the third dose of scarlet fever toxin had been administered to those who were susceptible.

Conditions in this school are unusually favorable for the spread of communicable diseases. The students, mostly of high school age, come from rural communities, live under rather congested conditions, congregate in one another's rooms, and have not been accustomed to obtain medical care for minor illnesses. The result is that certain students with mild infections remain up and about, in intimate association with a highly susceptible group of their fellows.

This outbreak of scarlet fever was preceded by an epidemic of German measles and numerous cases of

From the Students Health Service and the Department of Preventive Medicine and Public Health, University of Minnesota.  
1. Diehl, H. S., and Shepard, W. P. A Scarlet Fever Epidemic in an Agricultural School. J. A. M. A. 79: 2079-2085 (Dec. 16) 1927.

sore throat, clinically of the streptococcic type. This raised some difficult problems of diagnosis particularly as the cases of sore throat, possibly of the scarlet fever type, continued with greater or less frequency throughout the epidemic.

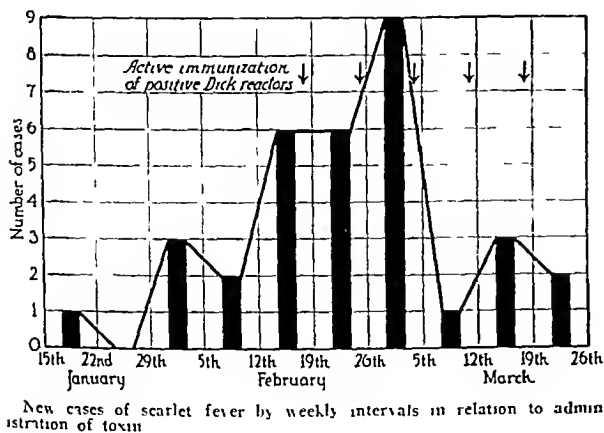
The first case of scarlet fever was diagnosed on January 15. Despite the daily examination of close contacts and the isolation and observation of suspected individuals, a second case with no known exposure to the first one, appeared on January 31. Both patients were boys and the infections were severe. From then on new cases kept appearing at intervals of one to seven days till a total of thirty-three cases had occurred, as shown in the chart.

#### THROAT CULTURES

Early in the epidemic, routine inspections of the throats of contacts were supplemented by cultures from the throats of suspected cases and contacts. Thirty-seven such cultures were examined for hemolytic streptococci in the laboratory of the University Hospital. Thirty of these were reported to contain many hemolytic streptococci; five showed a few colonies, and only three contained no hemolytic streptococci (table 1). Although all the individuals from whom these cultures were taken had positive Dick tests and were closely observed, none developed scarlet fever during the period of this epidemic. One individual in the group developed frank rheumatic fever and two developed sore throat with otitis media.

Cultures were taken also from three patients with scarlet fever and from twenty-one students selected at random from the group with positive Dick tests but without symptoms. These cultures were examined by the laboratories of the state board of health, according to the technic described by Tunnichiff.<sup>2</sup> The results are reported on the basis of the phagocytic index (table 2).

In a series of scarlet fever carriers reported by Tunnichiff, the phagocytic index varied from 4 to 18. Two of the frank cases of scarlet fever in our series (1 and 3) had indexes above 4 but the third case (2)



had a phagocytic index of only 0.7. Seven of the individuals included in the random sample of those with positive Dick tests had indexes above 4. Two of these (6 and 16) developed scarlet fever. One (19) developed rheumatic fever. The others showed no symptoms or signs of infection.

#### ACTIVE IMMUNIZATION

In view of the evident ineffectiveness of the control measures employed it was decided on February 12 to administer scarlet fever toxin to those susceptible who would not refuse it. Preparation for this was made by means of talks and bulletins to the student body.

TABLE 1—Cultures of Contacts and Suspects

Laboratory Report	Number of Cases	Per Cent
Many colonies of hemolytic streptococci	29	78
Few colonies of hemolytic streptococci	5	14
No colonies of hemolytic streptococci	3	8
Totals	37	100

TABLE 2—Phagocytic Index of Streptococci from Throat Cultures

Case Number	Phagocytic Index
From Patients with Scarlet Fever	
1	43
2	0.7
3	8.0
4	5.0
5	1.5
6	4.1
7	2.0
8	6.0
9	3.1
10	1.0
11	1.3
Random Samples from Students with Positive Dick Tests	
12	1.2
13	2.5
14	6.0
15	5.0
16	5.0
17	1.0
18	1.6
19	7.0
20	2.1
21	2.5
22	1.2
23	1.4
24	1.6

A preliminary Dick test of the group showed that 59 per cent of the boys and 62 per cent of the girls were susceptible. Some of these had been previously tested and a few immunized. At the time of the reading of these Dick tests, temperatures were "taken" and inspections of the pharynx and skin were made. Those with any suspicious manifestations were isolated.

Two hundred and forty-one students were given the first injection of scarlet fever toxin, 500 skin test doses, February 17. Subsequent injections were given at weekly intervals, but owing to reactions and other disturbing factors the number injected decreased somewhat with each subsequent injection. If a severe reaction followed one dose, the succeeding dose was divided. This accounts for the fact that some of the individuals who were given five doses received less than the usual 135,000 skin test doses of toxin.

#### SUBSEQUENT COURSE OF THE EPIDEMIC

The occurrence of new cases by weekly intervals and in relation to the administration of toxin is shown in the chart. From this it is apparent that the number of new cases declined abruptly after the third dose of toxin. In fact only one new case developed between the administration of the third and fourth doses and two between the fourth and fifth doses.

It is possible, of course, that this decline may have been merely coincidental with and entirely independent of the administration of toxin. On the other hand, reports indicate that considerable immunity develops after three doses of scarlet fever toxin. Furthermore, the course of the epidemic was distinctly upward at the time of the administration of the toxin and except

<sup>2</sup> Tunnichiff, Ruth and Crooks, C. T. The Health Carrier in Scarlet Fever. J. A. M. A. 92: 1498 (May 4) 1929.

for the immunization there should have been a sufficient number of susceptible students left in the group to permit the epidemic to continue for a considerable period. In an epidemic of scarlet fever in Berea College in Kentucky, in which active immunization was employed, fifty-nine new cases developed between the first and second dose of toxin, four between the second and the third dose, and none after the third dose had been administered.<sup>3</sup>

#### REACTIONS TO THE SCARLET FEVER TOXIN

A considerable proportion of the individuals who received the scarlet fever toxin experienced reactions more or less severe, following the injection. Most of these reactions were not incapacitating but almost 5 per cent of the group had reactions after each dose severe enough to cause them to be admitted to the Health Service infirmary. The rashes that followed some of the toxin injections introduced a problem of diagnosis, which in certain cases was distinctly troublesome.

The frequency and severity of these reactions were in marked contrast to our experience with active immunization in the students of the same school in the fall of 1935. At this time sixty-two new students who reacted positively to the Dick test were given five doses of scarlet fever toxin and only two in the whole series had reactions severe enough to cause admission to the infirmary, and even mild reactions were rare.

#### IMMUNITY PRODUCED

Although it is always desirable to administer Dick tests after the scarlet fever immunization, it was impossible to do so in this group because of the end of the school term. However, eighty-three of the students who had received scarlet fever toxin during the epidemic were tested when they returned to school in October, approximately six months after the completion of immunization. Of these, 67 per cent of those who received less than 11,000 units of toxin and 93 per cent who received more than 11,000 units of toxin had negative Dick tests (table 3).<sup>3a</sup>

TABLE 3—Dick Tests Six Months After Scarlet Fever Toxin

Skin Test Doses of Toxin Administered								
Dick Test	500-1000		11 500-135 000		More Than 135 000		Total	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
+	9	33.3	4	7.4			13	15.7
—	18	66.7	50	92.6	2	100.0	70	84.3
	27	100.0	54	100.0	2	100.0	83	100.0

The results shown in this table indicate a highly satisfactory degree of immunization, but it is also interesting to note that during the epidemic no cases of scarlet fever occurred among forty-three employees who had positive Dick tests and were closely associated with the school students but received no immunization, and that when twenty-three of these were retested in October, nine, or 38 per cent, had negative Dick tests.

#### SCARLET FEVER ANTITOXIN PROPHYLACTICALLY

At the beginning of the immunization procedures scarlet fever antitoxin was administered prophylactically to twenty-five individuals who had positive Dick tests and had been in close contact with patients with scarlet fever. No antitoxin was administered to any who gave a history of allergy or to any who reacted to an intradermal test dose of the serum. Thirteen of the group were given 2,000 units of antitoxin in a single

TABLE 4—Summary of Cases

	Antitoxin Therapy		
	Yes	No	Totals
All cases*	13	20	33
Previous history of scarlet fever	1	2	3
Received prophylactic antitoxin	2	3	5
Received no prior toxin	11	9	20
Received 500 S. T. D. toxin	1	6	7
Received 2 500 S. T. D. toxin	1	4	5
Received 10 500 S. T. D. toxin	0	2	2
Serum sickness	1	0	1
Serious complications	2	7	9
Deaths†	0	1	1
Dick test after six months			
Negative	3	6	9
Positive	0	1	1

\* Schultz Charlton test positive.

† Autopsy report: streptococcal empyema.

dose, nine received two doses of 1,000 units each on subsequent days, and three received one dose of 1,000 units.

In spite of the precautions taken to avoid allergic reactions, nineteen, or 76 per cent of the group, experienced either immediate or delayed reactions to the serum, and seventeen, or 68 per cent, had moderately severe or very severe reactions. Several of these were distinctly alarming. This high proportion of severe serum reactions was surprising in view of the recommendations for its use in susceptible persons who have been exposed to scarlet fever<sup>4</sup> and the adoption of its use as a routine procedure for all Dick positive children admitted to the pediatric service of the Toronto General Hospital.<sup>5</sup>

Five of the group who were given antitoxin prophylactically developed scarlet fever, but three of these had received only 1,000 units of antitoxin. One who was given 2,000 units developed clinical scarlet fever within twenty-four hours from the time that the antitoxin was administered. In view of this experience, the use of antitoxin prophylactically was not continued.

#### SCARLET FEVER ANTITOXIN THERAPEUTICALLY

Scarlet fever antitoxin was used for the treatment of the more severe cases. Fifteen per cent of those who were given antitoxin had serious complications as compared to 35 per cent of those who received no antitoxin, and in the latter group there was one death. This occurred in a student in whom pneumonia and empyema developed after several days of mild illness. Although the number of cases treated in this series is too small to justify the drawing of conclusions, the results have caused us to adopt the policy recommended by others<sup>6</sup> of giving antitoxin to all patients with scarlet fever as soon as a diagnosis is made. Only one patient who received scarlet fever antitoxin for treatment had a serum reaction.

4. Dick, Gladys H. The Control of Scarlet Fever Among Adults. *Journal of the Lancet* 54: 289 (May 15) 1934.  
5. Hannah, Beverly. Prevention of Scarlet Fever in a Children's Hospital. *Canada Public Health J.* 25: 587 (Dec.) 1934.  
6. Hunt, L. W. Treatment of Scarlet Fever with Antitoxin. *J. A. M. A.* 101: 1447 (Nov. 4) 1933. Lucchesi, P. F. and Bowman, J. E. Antitoxin versus No Antitoxin in Scarlet Fever. *J. A. M. A.* 103: 101 (Oct. 6) 1934.

3. Jones, J. L. and Armstrong, J. W. A Practical Demonstration of the Control of Scarlet Fever. *Kentucky M. J.* 27: 490 (Nov.) 1929.

3a. During the current school year with scarlet fever again prevalent in the community five cases occurred among the students of this school. All of these were new students this year. Two were recorded as having had negative reactions to the Dick test on admission; one had just completed the series of five injections of scarlet fever toxin but had not had a subsequent Dick test; and two had had positive Dick tests in October but refused immunization.



## SUMMARY

1 Active and passive immunization procedures were utilized in an attempt to control an epidemic of scarlet fever among 436 students of an agricultural school

2 The number of new cases of scarlet fever declined abruptly after the administration of the third dose of scarlet fever toxin

3 A large proportion of the individuals had mild reactions to the toxin and approximately 5 per cent of the group were admitted to the infirmary after each injection. These reactions were of short duration and not serious, but when accompanied by a rash they introduced difficulties of diagnosis

4 Ninety-three per cent of a group of susceptible students who had received more than 11,000 skin test doses of scarlet fever toxin showed negative Dick tests six months later. Thirty-eight per cent of twenty-three other individuals who had had positive Dick tests at the time of the epidemic but received no toxin gave negative tests six months later

5 Scarlet fever antitoxin was administered prophylactically to twenty-five susceptible individuals who had been in close contact with patients with scarlet fever. Seventy-six per cent of these had serum reactions and 68 per cent moderately severe or very severe reactions. Five of the group who received scarlet fever antitoxin prophylactically developed scarlet fever

6 The results obtained with scarlet fever antitoxin for patients were satisfactory in this small series of patients

PARATHYROID A NEW ANATOMIC  
CONCEPT

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The human body has been so carefully dissected and minutely studied that it is indeed an anatomic rarity for any one to claim a new observation. A perusal of the literature, however, failed to reveal the following which I am therefore reporting as original observations: 1 An explanation of the variation in the number of parathyroid glands found in any given specimen. 2 A description of the parathyroid nerves. 3 A location that may be considered normal for the inferior parathyroid gland.

The parathyroid bodies were first described by Sandstrom<sup>1</sup> in 1880. MacCallum,<sup>2</sup> Halsted<sup>3</sup> and others have added greatly to the store of knowledge concerning them. Their importance has been stressed in relation to thyroid surgery for years and total ablation of the thyroid gland has made the profession more parathyroid conscious. Lately, because of the recognition of parathyroid anomalies, the glands themselves have taken on renewed importance.

Textbooks and current literature all speak of the variability in their number and location, describe the arterial supply from the inferior and sometimes superior thyroid artery, and carefully omit mention of the nerve supply. Hembach<sup>4</sup> and others have attempted to chart

their number and location with little success. Feeling that such a variability in location was not in accord with the anatomic arrangement of any structure in the human body, my associates and I undertook this study. It is based on the dissection of thirty cadavers in the anatomic laboratory and several fresh specimens in the autopsy room. Each specimen was subjected to histologic study, and only those which proved to be parathyroids were considered. Ginsburg<sup>5</sup> has called attention to the deceptive character of lymphoid tissue in this region. We were deceived not only by lymph nodes but also by thyroid tissue and even by adipose tissue. These errors have been discarded in forming our conclusions. Our skill in recognizing parathyroids improved with each dissection and the incidence of error decreased as the series progressed. While our original intention was to study only the inferior parathyroids with the aim of finding their definite location, we became interested in the superior group and have

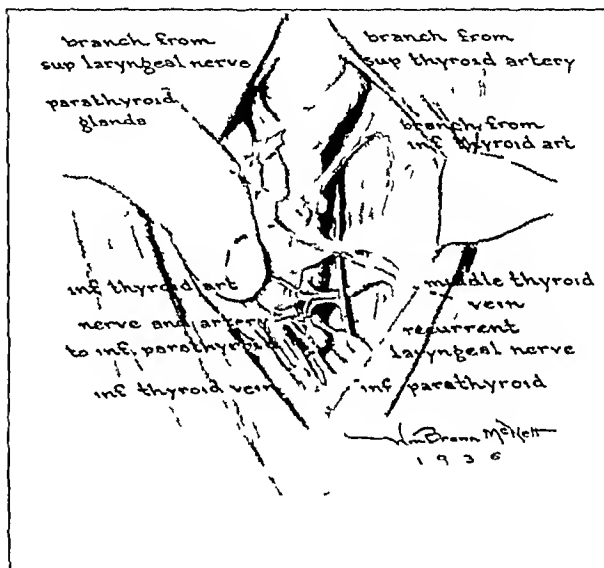


Fig 1—Artist's sketch of dissection by the author showing inferior parathyroid in ectopic position, superior parathyroid in position frequently found. Superior and inferior parathyroid stalk with nerves and arteries shown. Note the two glands derived from the superior stalk.

incorporated some of our observations concerning them. A more detailed study of the upper group will be made and reported at a later date.

## VARIATION IN NUMBER OF PARATHYROID GLANDS

On each side of the neck a branch of the inferior thyroid artery joins with a branch of the recurrent laryngeal nerve to form a 'stalk' to the parathyroid gland. Similarly a branch from the superior thyroid artery is joined by a branch from the superior laryngeal nerve to form a stalk to the superior parathyroid gland (fig 1). These four stalks are constant in number regardless of the number of parathyroids. Each of these four stalks described may lead to a single gland and that individual would have four parathyroid bodies. On the other hand from any of these four stalks two or more parathyroids may arise (figs 1 and 3). It is in this manner that the number of

From the Department of Anatomy, Temple University School of Medicine. This study was made possible through the kind cooperation of Professor John B. Lohdy.

1 Sandstrom quoted by Ginsburg.<sup>6</sup>  
2 MacCallum, W. G. The Surgical Relations of the Parathyroid Glands. Brit. M. J. 2: 1282-1286, 1906.  
3 Halsted, W. S., and Evans, H. M. The Parathyroid Gland: Their Blood Supply and Their Preservation in Operation upon the Thyroid Gland. Ann. Surg. 46: 507-540, 1907.  
4 Hembach, W. F. A Study of the Number and Location of the Parathyroid Glands in Man. Anat. Rec. 57: 251-261 (Oct.) 1933.

5 Identification of sections was made by Dr. W. C. Herrman of the Department of Histology and Dr. Frank Konzelmann and Dr. Louis Soloff of the Department of Pathology.

6 Cushing, Nathaniel. Surgical Anatomy of the Parathyroids. M. Bull. Univ. of Pennsylvania 20: 26, 1903. Surgical Importance of Parathyroid Gland and Closely Allied Lymph Node. J. A. M. A. 75: 1608 (June 1) 1912.

parathyroids varies in different individuals Churchill<sup>7</sup> and others report parathyroid tumors in the mediastinum. One of our dissections illustrated in figure 3 showed the stalk giving off two parathyroids and continuing down beneath the sternum into the mediastinal space and fusing with the fibrous tissue over the

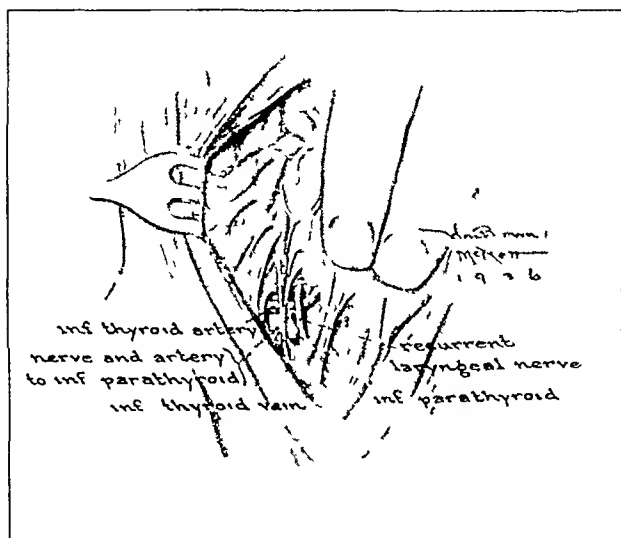


Fig. 2—Normal location of the inferior parathyroid gland. Note that it is free from the thyroid gland at point of crossing of inferior thyroid artery and recurrent laryngeal nerve. Note the short stalk formed by the artery and nerve to the parathyroid gland and the close position of the thyroid vein.

thymus. It could readily explain a mediastinal parathyroid. Lahey<sup>8</sup> and others have described parathyroids embedded in the thyroid gland. While in our dissections we did not encounter any, their presence can easily be accounted for according to our theory by the ingrowth of the inferior thyroid artery carrying with it the stalk of the parathyroid.

#### PARATHYROID NERVES

There is a definite nerve given off by the recurrent laryngeal nerve at the point at which it crosses the main branch of the inferior thyroid artery. This inferior parathyroid nerve accompanies the parathyroid artery and enters the hilus of the inferior parathyroid gland. It appears to supply no other structure. As every one knows, the superior laryngeal branch of the vagus divides into an internal and an external branch. The external branch, which is much the smaller, passes downward to supply the cricothyroid muscle. From this external branch a fine filament passes downward as the superior parathyroid nerve (fig. 1) and joins the company of the superior parathyroid artery.

We could find no description of these important parathyroid nerves. Maiman<sup>9</sup> carried out experiments on dogs to show that the vagus supplied the thyroid and parathyroid glands but gave no description of the nerves. Since such vital glands as the parathyroids derive their nerve supply so directly from such a highly specialized nerve mechanism as the nerves supplying the larynx, it might not be amiss to conjecture for a moment on the possibility of the physiologic study that suggests itself from the foregoing description.

#### LOCATION AND DESCRIPTION

The typical location of the inferior parathyroid gland is shown in figure 2. The recurrent laryngeal nerve and inferior thyroid artery vary considerably in their location and course, but of necessity they always cross. It is at this point of crossing that the stalk to which I have referred is formed. This slender stalk is usually about 5 mm long and the parathyroid body lies in the inverted V shaped niche formed by the artery and the nerve. Of the forty-four definitely identified inferior parathyroids, thirty-four were found in exactly this location. The remaining ten had stalks of variable length. Some were as long as 4 cm. These may be called ectopic glands and they were found in variable positions, depending, it seemed to us, on the pull exerted by the parathyroid vein which is a tributary to the inferior thyroid vein. The glands, either in the normal habitat or in the ectopic position, were always very close to one of the inferior thyroid veins. Rarely did we find the inferior parathyroid gland in contact with the thyroid gland. It was, then, usually free from the thyroid, posterior to and below it, snugly enveloped in a rug of fat. Figure 3 (inset a) shows the fascia opened, exposing the fatty capsule. Inset b shows the capsule opened, exposing the gland with its stalk entering the hilus. This fatty tissue has a peculiar shape and color that distinguish it from the surrounding adipose tissue, and one comes to recognize it just as one does perineal tissue. In fact, the similarity between embedded adrenal and parathyroid in its fatty capsule constantly impressed itself on us.

While we are not prepared to report on any definite position of the superior parathyroids, certain facts have

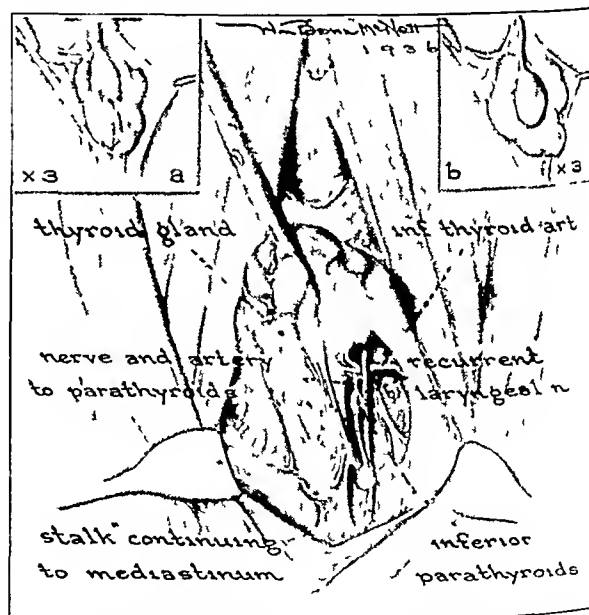


Fig. 3—The inferior parathyroid stalk with upper gland in normal habitat. Lower gland ectopic. Stalk continuing into the mediastinum. Inset a fatty capsule of parathyroid. Inset b fatty capsule opened exposing gland with hilus of artery and nerve.

been observed. The stalk is much longer than that of the inferior parathyroid. The arterial supply is usually from the superior thyroid artery, often joined by a branch from the inferior thyroid artery, as illustrated in figure 1. On one occasion it had a branch directly from the external carotid artery, which supplied no other structure. A frequent location of the superior

<sup>7</sup> Churchill, E. D. Parathyroid Tumors Associated with Hyperparathyroidism. *Surg. Gynec. & Obst.* 58: 255-271 (Feb.) 1934.  
<sup>8</sup> Lahey, E. H. Clinical Diagnosis and Operative Technique of Parathyroidectomy. *Surg. Gynec. & Obst.* 60: 1035-1051 (June) 1935.  
<sup>9</sup> Maiman, R. Z. *Chir. f. Zellforsch. u. mikr. Anat.* 22: 20-28 1934.

parathyroid body was about the middle of the thyroid gland, posterior to and near the trachea. In this location the parathyroid is in intimate contact with the thyroid gland. Whenever a parathyroid lies in juxtaposition to the thyroid it is naked, without fatty capsule as contrasted to the typical description given when speaking of the inferior parathyroid, which does not lie in contact with the thyroid gland.

#### SUMMARY AND CONCLUSIONS

A new concept of the anatomy of the parathyroids is based on the constant development of four stalks made up of the parathyroid arteries accompanied by the parathyroid nerves. The nerves, I believe, are described for the first time. Based on our observation of a short inferior parathyroid stalk the normal or typical location for the inferior parathyroid is given. Ectopic glands are accounted for by a long stalk and can often be found when not in the typical location by following this stalk. It is our hope that this contribution will lighten the difficult task of locating and identifying the parathyroid glands.

5106 North Broad Street

## MULTIPLE TUMOR SYNDROME IN THE MALE

CARCINOMA OF THE BREAST, PLEOMORPHIC SARCOMA OF THE THIGH AND NEUROFIBROMAS OF THE SKIN. REPORT OF A CASE

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We have observed an interesting combination of neoplasms in one individual, each having a different site of origin and location and each presenting an independent clinical problem. It is the combination of a malignant tumor of the thigh and papillary growths of the skin with the relatively infrequent carcinoma of the male breast that makes the case worthy of special notice.

As far as we can ascertain, these tumors have no interrelationship with one another. Yet the fact that the patient has the ability to form new growths from the derivatives of the various germ layers, two of the tumors being malignant and one benign gives a new insight into neoplastic tendencies in man. Heretofore, single or multiple growths from the same germ layer have been noted but the incidence of association of tumors and neoplasms derived from independent embryonal structures has not been extensively dwelt on.

#### REPORT OF CASE

A white man aged 57, a Lithuanian, admitted to our service Jan. 14, 1935, complained of a large swelling on the anterior aspect of the left thigh of six months duration.

The patient stated that he had been entirely well up to six months before at which time he noticed an itching sensation in the upper third of the left thigh. This area which was about the size of a dime (18 mm.) was covered with small red spots which itched so terrifically that he was forced to scratch them in order to obtain relief. A few days later the red spots on the anterior aspect of his thigh disappeared and

were followed by what he termed "black spots," which became raised above the surface of the skin and took on a bluish hue after a few days. This itched only slightly and he was able to relieve himself by gently rubbing the raised area. Within six months this mass grew from the size of a hazelnut to a mass about the size of a small grapefruit. The only particular complaint at the time of examination was that his trouser leg would impinge on the mass and slightly irritate it, so he came in to have it excised.

The general history revealed nothing of special importance except that for a number of years he had worked in a tannery in which he had done a considerable amount of lifting of hides. Being a right-handed man he would brace the bundle with his left leg and throw it over his left shoulder. The force of the lift was transmitted over his left thigh, the left side of the abdomen and the left breast and occasionally over his right shoulder. Lately he had been working as a butcher in the capacity of a meat cutter, wherein he was obliged to handle sections of beef pork and various meats of fairly large size in almost the same manner in which he handled the hides when he worked in the tannery.

On physical examination he did not appear to be acutely ill. He was rather obese. He was not especially perturbed about the growth on his thigh except that it was in his way when he was dressing and walking. The skin was normal except for two papillomas present on his back at the level of the eleventh thoracic vertebra to the right of the middle line.

The pulse was 88, temperature 97 F, respiration rate 20, and blood pressure 150 systolic, 90 diastolic. The head and neck were normal except for a flushed appearance of the face. The chest was of the emphysematous type.

Of especial interest were the breasts, the patient however, had not noticed anything wrong. They were enlarged bilaterally, the left breast (fig. 1) was enlarged, indurated and slightly fixed to the underlying tissue. There was a purplish area in the region of the areola, the nipple was retracted with no secretion, and the whole mass had a slightly puckered appearance. The right breast was enlarged but was not fixed to the underlying tissues. The areola was not indurated and the nipple was protruding. The breast itself covered an area about the size of a quarter (24 mm.) and was very soft to the touch. No secretion was present.

The lungs were essentially normal except for a slightly increased dullness over the chest anteriorly and with some diminution of the breath sounds in the areas of increased dullness.

The heart had a suggestive diastolic blow over the aortic area, associated with a tambour sound at the second aortic. The pulse was full and bounding but the peripheral cardiac signs of aortic regurgitation were absent.

The abdomen and genitalia were essentially normal.

On the left leg (fig. 2) there was a well defined mass about the size of a small grapefruit on the anteromedial aspect of the left thigh at its middle. It was freely movable at its upper and lower poles and slightly adherent to the underlying structures at its base. The overlying skin was a purplish red and in the center of the mass was an area about the size of a five cent piece (21 mm.) which was slightly elevated and was redder than the mass itself. Numerous distended veins were seen coursing through the mass which was soft in consistency and not tender to the touch.

The right thigh and lower leg were essentially normal except that varicosities of both limbs were present.

The impression at the time of the physical examination was that of a sarcoma of the left thigh which was possibly a fibrosarcoma, however a rhabdomyosarcoma was considered. In the differential diagnosis the following conditions had to be ruled out: endothelioma, angioma, varix, hypernephroma and syphilis.

In view of the clinical appearance in the breast the following were considered: carcinoma, sarcoma and gynecomastia secondary to either a tumor of the testicle or a disturbance of the anterior pituitary gland.

Laboratory examinations revealed hemoglobin 80 per cent, red blood cells 4,730,000, white blood cells 7,450, polymorphonuclear leukocytes 48 per cent, eosinophils 1 per cent, lymphocytes 43 per cent, monocytes 8 per cent. Urinalysis was negative, the A. Chalmers-Zondek test was nega-

tive, a complete roentgen study of all the bones, the chest and the abdomen was negative for metastases, and the Wassermann reaction was negative.

The patient submitted to surgery four days after his admission to the hospital, and the tumors of the left thigh and the left breast were excised and submitted to the surgical pathology division for examination by Dr Benjamin Neiman, senior resident pathologist at Cook County Hospital.



Fig 1—Left breast enlarged with induration and retraction of the nipple

The mass from the left breast consisted of an elliptical piece of skin containing the subcutaneous tissues in the center of which was a nipple. The specimen measured 8 by 3 cm. Directly beneath the nipple was a node 2 cm in diameter which

TABLE 1—*Tabulated Course of Roentgen Therapy*

Date	Kilo volts	Milli amperes	Distance	Filter	Time	Roentgens
2/—/35	200	30	50	Copper 1/2 inch aluminum 1 inch	52	400
2/25/35	200	30	50	Copper 1/2 inch aluminum 1 inch	55	400
4/1/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400
4/8/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400
4/16/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400
4/24/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400
4/30/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400
5/7/35	200	30	50	Copper 1/2 inch aluminum 1 inch	45	400

Area 1: Irradiation of left breast and left thigh done at same visit

consisted of multiple cysts up to 5 mm in diameter containing a clear blood-tinged fluid. In the center of this node was a round whitish firm granular area measuring 6 mm.

The whitish nodule seen grossly was composed of a cellular structure with very little stroma (fig 3). The cells were anaplastic showing many mitotic figures and arranged in glandular formations. The cysts seen grossly about the nodule were composed of dilated ducts lined by proliferated epithelium. The lumen was filled with desquamated epithelial and red blood cells.

The mass from the left thigh consisted of a piece of skin and subcutaneous tissue 13 by 11 by 7 cm. The overlying skin was a purple gray. In approximately the center of the

specimen there was a well defined, firm, nonfluctuant node 15 cm in diameter. To the right of this node was a larger and less well discrete swelling 4 cm in diameter, which was slightly fluctuant. On sectioning, the mass was composed of a 10 cm node, this node was made up of confluent smaller nodes, pale purple, gray and mottled with purple red, soft and brainlike in consistency and fusing with the surrounding tissues.

"The tumor consisted of pleomorphic cells and the stroma was scant (fig 4). There were many large multinucleated cells. The nuclei of these were bizarre in shape. The cytoplasm was ample and oxyphilic. Atypical mitotic figures were present and very prominent. Many of the cells had an elongated cytoplasm with fusiform nuclei. The cytoplasm was in intimate relationship with the hyalinized ground substance. In places regressive changes were present, leaving only ghost structures of preexisting tumor cells. A section taken with the overlying skin revealed the tumor to be in the subcutaneous tissues having its origin either in the deep fascia or in the muscle.

'Phosphotungstic acid hematoxylin stain did not reveal cross striations, but the pleomorphism of the histologic picture suggested a myogenic origin.

Microscopic examination of the node removed from the breast showed that it was obviously an adenocarcinoma.

'The node received at a subsequent date which had been removed from the skin of the back, consisted of a pea sized nodule surrounded by a small amount of skin.

"At the junction of the papillary and reticular layer of the cutis there was an irregular, sharply circumscribed and moderately vascular node which consisted of a finely fibrillary ground substance that stained a pale purple gray in contrast to the bright red surrounding collagenous ground substance.



Fig. 2—Pleomorphic sarcoma of the thigh

Encased in the finely fibrillary ground substance there were oval nuclei with a finely granular dense chromatin net. The nuclei were surrounded by a narrow rim of homogeneous cytoplasm that was often not sharply separated from the ground substance. Here and there the nuclei showed a tendency to palisade formation.

'The node removed from the skin gave the histologic picture of a benign neurofibroma. It in no way bore any resemblance to the malignant neoplasm of the thigh. Since the tumor of

the thigh was not neurogenic in origin it could not be interpreted as a malignant transformation of a neurofibroma, which would be very tempting from a clinical standpoint.

The postoperative treatment consisted of high voltage roentgen therapy equivalent to one-half erythema dose weekly. The patient was not always punctual in keeping his appointments however and consequently some weekly doses were missed. The high voltage irradiation was applied over the left side of

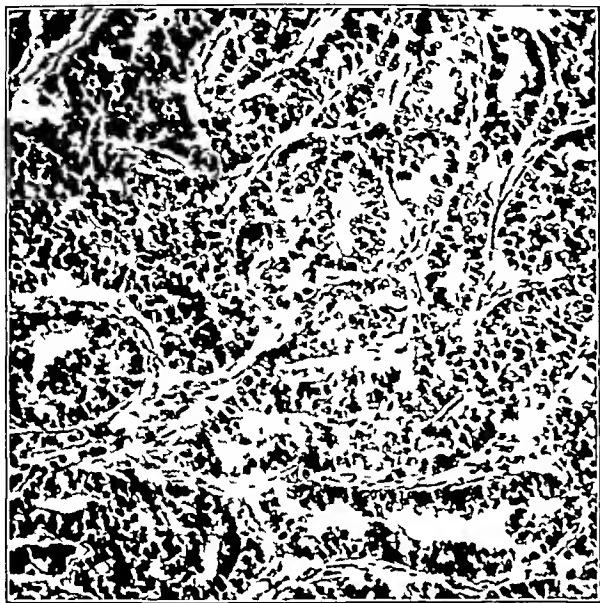


Fig 3—Section showing the carcinomatous involvement of the breast (Hematoxylin and eosin  $\times 150$ )

the chest and the left thigh in the regions where the tumors had been excised. The patient has been followed postoperatively for approximately four months and to date has shown a slight increase in weight and no evidences of metastasis at present (table 1).

Kufanoff,<sup>1</sup> in a review of the literature and on the basis of three cases that he had observed, concluded that tumors of the male breast are rare, that cures are more uncommon than in the female, and that benign neoplasms in the male breast are more rare than malignant growths.

Kummer<sup>2</sup> states that cancer in the male breast is most frequent at 60 but is encountered in all ages from 12 to 91, that the right side is more often affected than the left and that bilateral disorders are rare.

Fessler<sup>3</sup> states that "the normal male breast shows gland vesicles from puberty up to the thirtieth year but neither before nor after."

Muellerder<sup>4</sup> approves of prophylactic secondary irradiation at intervals after operation for a prolonged period.

According to Speed,<sup>5</sup> tumors of the male breast furnish 1 per cent of all breast tumors that afflict both sexes. The predisposing causes of male breast tumors are obscure. Trauma due mainly to occupation may have an influence but it cannot be definitely analyzed. However the effect of chronic irritation from occupational pressure or the pressure of clothing may be easier to appreciate.

Samples of a male breast tumor following a single trauma are rare. Manger in seventy-one collected cases in men, found a preceding trauma in twenty-five, Yanamoto, in 257 cases, found a traumatic history in 61.10 per cent, and 10 per cent of all his patients gave a hereditary cancer history.

Wainwright,<sup>6</sup> in an exhaustive study of 408 cases found that the left side was affected more frequently, that the average age was 52.6 years and that symptoms of carcinoma of the breast in men differ from those of carcinoma of the breast in women only in frequency of onset. He concludes that the end results in men are not as good as results in women.

Neal and Simpson<sup>7</sup> studied 152 male breasts among 5,314 breasts encountered in 54,430 specimens submitted for pathologic diagnosis. Non-neoplastic diseases made up 35.52 per cent of the total cases, benign tumors 39.74 per cent, and malignant tumors 23.02 per cent.

Cadore<sup>8</sup> of the University of Pisa in a study of six tumors of the male breast seen between 1911 and 1928 reports the incidence of these tumors as 0.55 per cent of all breast tumors seen during that period.

Gioia and Bianchi<sup>9</sup> agree with Wilms that the histologic pathology depends on whether the primordial cells have arisen before or after the differentiation of the three blastodermic layers.

Gutierrez and Monserrat<sup>10</sup> found the following relation in Argentina: malignant tumor of the male breast 63.1 per cent, benign tumors of the male breast, 36.9 per cent.

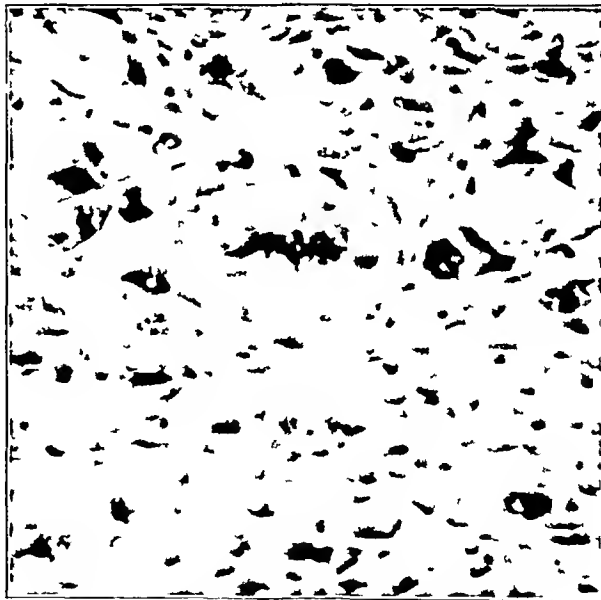


Fig 4—Section showing the pleomorphic carcinoma of the thigh. Note the marked pleomorphism (Hematoxylin and eosin  $\times 300$ )

Dessant and Plantevin<sup>11</sup> report two cases of cancer in the male breast.

<sup>1</sup> Kufanoff J. Tumors of the Male Breast. *Klinische Wochenschrift* 2: 1922.

<sup>2</sup> Kummer R H. Two Cases of Cancer of the Breast in Men. *Virchows Archiv* 20: 283 (Sept-Oct) 1923.

<sup>3</sup> Fessler J. Cancer of the Male Breast. *Deutsche Zeitschrift für Chirurgie* 172: 429 1922.

<sup>4</sup> Muellerder Anton. The Cysticities of Carcinoma of the Breast in Men. *Archiv für klinische Chirurgie* 120: 686 1922.

<sup>5</sup> Speed Kellogg. Tumors of the Male Breast. *Annals of Surgery* S22: 45 (July) 1925.

<sup>6</sup> Wainwright J M. Carcinoma of the Male Breast. Clinical and Pathological Study. *Archiv für Chirurgie* 11: 836 (April) 1927.

<sup>7</sup> Neal M P and Simpson B T. Diagnosis of the Male Breast. *Journal of the American Medical Association* 27: 265 1930. Abstract. *American Journal of Cancer* 15: 2936 (Oct) 1931.

<sup>8</sup> Cadore A. Case Histories of Tumors of the Mammary Glands in the Male. *Revista Argentina de Clínica y Terapéutica* 11: 628 (Sept) 1930.

<sup>9</sup> Gioia T and Bianchi A E. Mixed Tumor of the Male Breast. *Boletín de la Sociedad de Cirujanos de Buenos Aires* 11: 146 (May 14) 1930.

<sup>10</sup> Gutierrez Alberto and Monserrat J I. Breast Tumors in Men. *Revista de Cirugía* 5: 978 (Dec) 1929.

<sup>11</sup> Dessant and Plantevin. Cancer of the Male Breast. Two Cases. *Bulletin Association Française pour l'étude du cancer* 20: 94 (Jan) 1931.



Guez<sup>12</sup> states that cancer of the male breast is very rare in France

In Rosh's<sup>13</sup> studies of a series of 207 breast carcinomas at Bellevue Hospital during the past six years six, or 3 per cent have been in the male. He is convinced of the effectiveness of postoperative irradiation of breast carcinoma in the male as well as in the female

Schreiner<sup>14</sup> reviews 1 664 cases of diseases of the breast seen in the tumor clinic of the New York State Institute for Malignant Diseases, and thirty-one were in the male

Neal,<sup>15</sup> in an exhaustive study, concludes that

- 1 The most frequent lesions of the male breast are non neoplastic processes (46.42 per cent)
- 2 The second most frequent lesions of the male breast are the benign tumors (34.09 per cent)
- 3 The third most frequent lesions of the male breast are the carcinomas (16.23 per cent), tumors of skin origin account for 16 per cent of these, and those of duct or acinus origin account for 84 per cent
- 4 Sarcomas constitute 3.25 per cent of the lesions of the male breast
- 5 Carcinomas of the male breast were responsible for 1.24 per cent of the carcinomas of the breast in both sexes

TABLE 2—Bick's Histologic Classification of Cases

Type	
Hemangioma	11
Sarcoma	20
Fibrosarcoma	13
Neurofibrosarcoma	4
Myosarcoma	1
Myosarcoma	1
Chondrosarcoma	1
Fibroma	1
Neurofibrosarcoma (excluding von Recklinghausen's multiple neurofibromatosis)	2
Carcinoma	1
Total	35

6 Of the sarcomas of the breast in both sexes, 19.61 per cent were found in the male breast

7 Carcinomas are eighty times proportionately more prevalent in the female breast than in the male

8 Sarcomas are sixteen times proportionately more prevalent in the male breast than in the female

9 Carcinomas occur in the male breast only five times more frequently than do sarcomas, whereas in the female breast carcinomas are seen seventy-nine times more often than are sarcomas

10 Of all the lesions of the breast, 3.31 per cent occurred in men

11 The average age of patients at the time of observation for carcinoma was 57.7 years and for sarcoma, 39.7 years

12 The present day standardization of hospitals and laboratories is promoting a better and more extensive diagnosis of tissues and more dependable records from which statistics may be compiled

#### SKELETAL MUSCLE SARCOMA

Bick<sup>16</sup> in a recent article collected a series of thirty-five cases of skeletal muscle sarcoma and says "Tumors involving the skeletal muscles while not of frequent occurrence are by no means rare. Of these, the two most common types are haemangeomata and sarco-

mata." He lists his series of cases according to their histologic classifications (table 2). He writes

Sarcoma may involve the skeletal muscle in several ways. First the tissue of origin may be intramuscular, that is sarcolemma, perimysium, interfascicular connective tissue, the visceral layer of muscle sheath, perineural or perivascular connective-tissue sheaths. Secondly, the tumor may infiltrate the muscle body from a source outside, but in direct contact with it, such as for example, a fibrosarcoma of periosteal or intermuscular fascial origin. This infiltration by direct contact is also the source of intramuscular osteo- and chondrosarcomata. Thirdly, the muscle body may be involved by a metastatic process as occurs when a large secondary fibrosarcoma appears in the muscles and surrounding soft tissues of the thigh following the removal of a supposedly benign fibroma from the plantar surface of the foot.

The statement is repeatedly made that sarcoma occurs most commonly in youth or the young adult. However, fibrosarcoma of the extremities may occur at any age and in fact was found most frequent in the fourth and fifth decades. The ages of the twenty cases listed range from 10 to 60, appearing with maximum frequency between 20 and 40. The age groups for fibrosarcoma and neurofibrosarcoma are similar. This is in marked contrast to a characteristic age of origin for intramuscular hemangiomas. The latter in all probability, invariably a congenital lesion, is usually first noted in early childhood.

Of nine cases of fibrosarcomata in which the duration of tumor was noted, in all but one it was of a year or less. In one case it was two and one-half years. In four cases of neurofibrosarcomata the duration was from seven to twenty-six years. The long duration of a static neurofibrosarcoma followed by a rather brief period of rapid growth often but not always after trauma, is characteristic of tumors of nerve sheath derivation. Likewise, it is not unusual for a fibrosarcoma of the anterior abdominal wall to be discovered only at the time of pregnancy when this tension of the musculature brings a hitherto unnoted sausage shaped tumor into prominence. Although the muscle tumor of relatively short duration suggests a diagnosis of fibrosarcoma, one of longer duration does not necessarily signify benignity. In the presence of a neoplasm which has existed from childhood, hemangioma must be considered, in one of long duration, however, an onset later in life, a neurofibrosarcoma, is a probable diagnosis.

The sites of predilection for intramuscular sarcomas are the thigh, abdominal wall and forearm, sixteen of the twenty cases occurring in these regions with approximately equal frequency. Two of the neurofibrosarcomas occurred in the leg and two in the forearm. Fibrosarcomas occurring in the abdominal wall musculature have long been known under the old clinical name of "desmoid", that is, fibrous tumor. These usually involve the rectus abdominis of either side.

Pain is rarely an early symptom in most instances although a minor ache may have been present at recurring intervals, actual pain either is never experienced or appears only when the tumor is well advanced in size. When present it is apt to be described as "rheumatic." Unlike bone sarcoma, the pain is seldom constant. The presence of pain radiating down a specified nerve distribution is suggestive of but not pathognomonic for a neurogenic tumor or neurofibrosarcoma. Any muscle tumor which in its growth involves a nerve supply will produce radiating pain. Muscle sarcomata may or may not be tender, usually they are not. However occasionally one finds some moderate pain present for a while after a slight trauma.

Ewing,<sup>17</sup> Stout<sup>18</sup> and Cheate and Cutler<sup>19</sup> make no reference to multiple tumors of the leg and skin in association with a tumor of the breast.

#### SUMMARY

A white man, aged 57 clinically and pathologically exhibited a multiple tumor syndrome, each neoplasm being independent of the other and arising from dif-

12 Guez J. Cancer of the Male Breast in a Native Tunisian med 25 123 1931  
13 Rosh R. Cancer of the Male Breast. Am J Surg 13 S14 (Sept) 1931 abstr Am J Cancer 16 833 (July) 1933  
14 Schreiner B F. Tumors of the Male Breast Based on a Study of 31 Cases. Radiology 18 90 92 (Jan) 1932  
15 Neal M P. Malignant Tumors of the Male Breast. Preliminary and Abbreviated Report. South M J 25 841 844 (Aug) 1932. Malignant Tumor of the Male Breast. Arch Surg 27 427-465 (Sept) 1933  
16 Bick E M. Skeletal Muscle Sarcoma. Ann Surg 86 949 956 (June) 1934 abstr Internat S Digest 18 112 114 (Aug) 1934

17 Ewing James. Neoplastic Disease ed 3 Philadelphia W B Saunders Company 1928  
18 Stout A P. Human Cancer Philadelphia Lea & Febiger 1933  
19 Cheate C C and Cutler Max. Tumors of the Breast London Edward Arnold & Co 1931

ferent Anlagen, the tumors were removed surgically and up to the present date our patient has shown no evidence of metastases. He appears to be progressing physically under the course of radiation therapy as outlined.

#### CONCLUSIONS

1. Carcinomas of the male breast are responsible for 124 per cent of the carcinomas of the breast in both sexes.

2. Carcinomas are eighty times more prevalent in the female breast than in the male breast.

3. Surgical excision combined with postoperative irradiation has been found to be the treatment of choice.

4. Skeletal muscle sarcomas may be derived from any of the contiguous and continuous structures anatomically associated with the muscle, treatment here is preferably surgical excision followed by postoperative irradiation.

5. Neurofibromas of the skin are relatively benign neoplasms and in this instance did not show any evidence of malignant change.

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### ALOE VERA IN THE TREATMENT OF ROENTGEN ULCERS AND TELANGIECTASIS

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The use of the fresh whole leaf of aloe vera in the treatment of roentgen dermatitis was suggested by C. E. and Creston Collins.<sup>1</sup> Early in 1935 they reported the case of a woman, aged 31, who had had a severe roentgen dermatitis of the left forehead following a depilating roentgen treatment. Various local treatments were tried without effect and exfoliation and severe itching persisted at the treated site. The patient received a local application of the fresh whole leaf of aloe vera to allay the itching. Within twenty-four hours the sensation of itching and burning subsided and the condition progressively improved within the next five weeks and showed complete regeneration of skin of the forehead and scalp, new hair growth, complete restoration of sensation, and absence of scars.<sup>2</sup>

Radiation sequelae have been classified by Wise and Sulzberger<sup>3</sup> as "(1) pigmentation (2) telangiectasis (3) sclerosis, (4) keratosis, (5) persistent desquamation, (6) wrinkling, (7) atrophy (8) ulceration and (9) cancer." In their hands sequelae characterized by pigmentation, telangiectasis and sclerosis have not responded favorably to treatment with solutions and ointments impregnated with thorium X, radium salts or radon. Ulcerative lesions exhibiting no evidence of malignant degeneration would of course occasionally respond to ointments of these types although Wise and Sulzberger state that Dr. Miesch of the Zurich clinic who has had a wide experience with thorium X, radium and radon preparations in the treatment of x-ray sequelae has abandoned these remedies and employs other palliative as well as surgical methods of treat-

ment. In this country most dermatologists and surgeons have treated radiation ulcers by surgical removal of the affected tissue, closing the defect by sutures, grafts or skin flaps.

Following a personal communication from Dr. Creston Collins in 1934, in which he warned me that results could not be expected in x-ray sequelae of more than two years' duration, I began the use of the fresh aloe vera leaf in the treatment of two cases of x-ray telangiectasia resulting from ill advised attempts at x-ray depilation by local advertising concerns and in one case of radium telangiectasia of ten years' duration. Because of the difficulty of applying the whole leaf directly to the areas in question, I scraped out the intestinal contents of the aloe vera leaf and mixed it with an equal quantity of aquaphor and had the patient massage this into the skin every night.

The aloe vera leaf contains a large quantity of light yellowish green material having about the color and consistency of lemon jello, it is the intestinal material that is used for local application. The directions given by C. E. and Creston Collins are to spread the leaf lengthwise or cut it into thick cross sections, macerate the intestinal material and while it is still fresh to apply liberal quantities to the area to be treated, covering it with a neutral nonporous substance such as waxed paper. A bandage is used to keep it in place.

When a piece of the leaf is applied in this way to an open lesion and removed after several hours the resinous, gelatinous substance of the leaf has apparently disappeared, leaving only the hard outside shell. It would appear that this substance is absorbed by the skin or eroded tissue.

Since October 1934 seven cases of x-ray telangiectasia and the one case of radium telangiectasia have been treated by this method. No improvement was obtained as regards the degree of telangiectasia but the texture of the skin was improved in all cases. One



Fig. 1 (case 2)—Appearance of hands Dec. 23, 1935 (photograph courtesy of Dr. George Prahler).

could not expect that the telangiectasia resulting from excessive x-ray application would be improved by any method that did not include destruction of the enlarged vessels.

My purpose in this paper is to present the remarkable improvement obtained in two cases of x-ray ulceration with the hope of stimulating interest in what promises to be a revolutionary method of treatment for early x-ray damage to the skin and ulceration of the skin resulting from x-rays.

CASE 1—Mrs. C., aged 60, received prolonged x-ray treatment for an eczema of the hands prior to 1920. In 1932 she

1. Collins, C. E. and Collins, Creston. Roentgen Dermatitis Treated with Fresh Whole Leaf of Aloe Vera. *Am. J. Roentgenol.* 33: 596 (March) 1935.  
2. Wise, Fred and Sulzberger, M. B. *Year Book of Dermatology and Syphilology* 1935.

developed fissuring and superficial ulceration of the palmar surface of the right forefinger and thumb. This condition gradually became worse. In June 1935 treatment was started with the aloe vera ointment made as described, with marked improvement in the condition of the hands and complete healing by September 1935. The patient has found it necessary to continue the use of the ointment in order to keep the skin in good condition.

In view of the warning of Dr. Creston Collins that little could be expected in the treatment of x-ray sequelae of more than two years' duration, the results in this case were most encouraging.

The following more striking case illustrates the value of following the method originally suggested by Dr. Collins of employing the plant itself directly to the lesions.

**CASE 2**—Dr. S., aged 43, in 1933 while attempting to remove a needle from a patient's finger under fluoroscopic direction sustained a prolonged exposure to the x-rays, resulting in the production of an acute roentgen dermatitis involving the thumb and the first, second and third fingers of the left hand. This dermatitis appeared approximately two and one-half weeks after exposure. Under application of thymol iodide powder the local inflammation and exudation diminished and the lesion partially healed. In November 1935 the skin of the burned area broke down with the development of superficial ulceration, considerable exudation and crusting. This was the condition

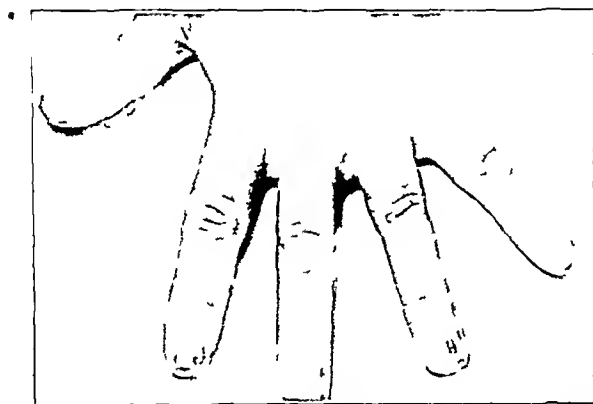


Fig. 2 (case 2)—Appearance of hands Jan. 15, 1936, three weeks after beginning the application of aloe vera.

of the hand when the patient first consulted me at the suggestion of Dr. John H. Stokes, who was familiar with my interest in the treatment of any available roentgen sequelae with aloe vera. The skin surrounding the ulcerating area showed telangiectasia and atrophy. There could be no doubt of the fact that the condition of the fingers and thumb was due to x-ray effects and Dr. Stokes concurred in the diagnosis of x-ray ulceration.

Treatment was immediately started with aloe vera, the leaf being applied according to directions at night, and an ointment of aloe vera (Alvigel as prepared by Dr. Creston Collins) during the day. Applications of the ointment were covered directly with cellophane to promote skin absorption. In three days there was a marked improvement in the appearance of the fingers and in three weeks the skin was virtually healed as is best demonstrated by the accompanying illustrations.

#### SUMMARY

In view of the unfortunate but nevertheless occasional burns that may result from overexposure to roentgen rays, any therapeutic agent that offers a hope of quick healing and relief of discomfort in such sequelae is worthy of further study. From the cases reported it would seem that x-ray ulceration even of several years' duration will respond to the use of aloe

vera. The permanence of results can be determined only by watching cases thus treated over a period of time.

Little can be expected in the treatment of telangiectasia as a result of irradiation beyond a smoothing and softening of the affected skin.

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## RELAXATION OF THE SYMPHYSIS PUBIS IN PREGNANCY

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Over two centuries ago Mauriceau,<sup>1</sup> in refuting the opinion that the pubic bones separated in labor, wrote: "Others are of the opinion that these bones thus separated at the time of labour, are thereby degrees a little before disposed by the slimy humours, which flow forth from about the womb, and these mollify the cartilage, which at other times join them firmly." In the light of present-day knowledge this opinion of "others" is of great interest, for relaxation of the symphysis pubis during pregnancy appears to be an established fact.

Relaxation of the pelvic joints during pregnancy has been recognized for many years. As early as 1870 Snelling<sup>2</sup> wrote that "relaxation of the pelvic articulations becomes apparent suddenly after parturition or gradually during pregnancy, permitting a degree of mobility which hinders locomotion and gives rise to the most alarming and distressing sensations." However, it is only within a comparatively short time that accurate observations have been made showing the frequency and degree of separation of the symphysis pubis. In this regard the contributions of Heyman and Lundqvist<sup>3</sup> in 1932 and Abramson, Roberts and Wilson<sup>4</sup> in 1934 are outstanding. The first named authors conclude that the symphysis increases in width in all pregnant women and decreases in width in the postpartum period. In their series of seventy-four pregnant women (forty-eight primiparas, twenty-six multiparas) the average width of the symphysis was within 7 and 8 mm, with a maximum width of 12 mm. The greatest increase was found within the fifth and seventh months of the antepartum period. However, no measurements were made before the fifth month of the antepartum period.

The second named authors studied normal multiparas, normal males, pregnant multiparas and twenty-five consecutive primiparas and concluded that relaxation of the symphysis begins in the first half of pregnancy, progressing but slightly in the last three months, and that retrogression begins immediately following delivery and is usually completed by the end of from three to five months. They also conclude that there is no essential difference between the behavior of the pelvic articulations in primiparas and in multiparas.

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This study was made possible through the Research Funds of Yale University School of Medicine.

<sup>1</sup> Mauriceau, François. *The Diseases of Women with Child and Childbed*. Translated by Hugh Chamberlen, M.D. London: A. Bell, 1747.

<sup>2</sup> Snelling, F. G. quoted by Litzberg, J. C. *Sacro-Iliac Joints*. Obstetrics and Gynecology, J. A. M. A. 69: 1759 (Nov. 24) 1917.

<sup>3</sup> Heyman, J. and Lundqvist, A. *The Symphysis Pubis in Pregnancy and Parturition*. Acta obst. et gynec. Scandinav. 12: 191, 1933.

<sup>4</sup> Abramson, Daniel, Roberts, S. M. and Wilson, P. D. *Relaxation of the Pelvic Joints in Pregnancy*. Surg., Gynec. & Obst. 58: (March) 1934.

In the present communication the observations that are reported were derived from a study of 100 primiparous women at different stages of pregnancy, with a brief report of a case in which the pelvic relaxation incident to pregnancy was marked and was associated with severe symptoms. This report of the observations in 100 primiparous women may be said to be essentially that of a consecutive group of individuals since it represents a study of roentgenograms taken for pelvimetric purposes during a six months period.

The method of roentgen pelvimetry employed is the so-called grid method which was developed by my associates and myself in our clinic and is believed to be accurate.<sup>5</sup> In the observations that comprise the present report the narrowest diameter of the symphyseal widening was chosen as the point of mensuration. The grouping of this series into periods of pregnancy noted in months was based on the size of the shadow of the fetal head as shown in the roentgenograms. Those instances in which no fetal head shadow



Fig 1—Appearance Feb 4 1935 at seventh month of fifth pregnancy

#### Observations in One Hundred Primiparous Women

	Number of Cases	Average Symphyseal Spread
Early pregnancy fourth month or less	28	0.36 cm
Fifth month	9	0.42 cm
Sixth month	4	0.52 cm
Seventh month	12	0.49 cm
Eighth month	13	0.55 cm
Ninth month	34	0.58 cm
Symphyseal spread in the first half of pregnancy		
0.2 cm	6 times	
0.3 cm	9 times	
0.4 cm	4 times	
0.5 cm	8 times	
0.6 cm	1 time	
Symphyseal spread in the latter half of pregnancy		
0.3 cm	10 times	
0.4 cm	10 times	
0.5 cm	23 times	
0.6 cm	15 times	
0.7 cm	7 times	
0.8 cm	4 times	
0.9 cm	2 times	
1.0 cm	1 time	

was visible I have grouped as belonging to the first half of pregnancy, four months or less. With regard to roentgenograms taken after the fourth month of pregnancy I may say that my experience in interpreting pelvic roentgenograms has led me to assume a reasonable accuracy in determining the duration of pregnancy in months from the size of the shadow of the fetal head.

The observations in 100 primiparous women are summarized in the accompanying table. In the twenty-eight cases of the first half of pregnancy the minimum

spread was 0.2 cm and the maximum 0.6 cm. In the seventy-two cases of the second half of pregnancy the minimum spread was 0.3 cm and the maximum 1 cm.

It may be interesting to note that in the series recorded the pelvis presented the following types according to our classification:<sup>5</sup> round type forty-five times, female type, thirty-seven times, anthropoid type, eighteen times. However no relationship between the amount of symphyseal relaxation and pelvic type was apparent.

There is no doubt that pelvic instability incident to pregnancy changes in the pelvic joints and associated with symptoms of discomfort is far more common than is usually supposed. These symptoms may include pain in the symphyseal region, backache and localized pain in one or both sacro-iliac joints and difficulty in normal locomotion. Such pelvic instability may assume major proportions, as is witnessed in the case here briefly reported.

Mrs. H. R., a white married woman, aged 28, was first seen in the Women's Clinic of New Haven Hospital Sept. 9, 1929, in the fourth month of her second pregnancy. Her first pregnancy had ended at the eighth month with the normal delivery of a 6 pound (2700 Gm) baby. She was not seen again during the second pregnancy until labor had begun, Feb. 20, 1930. At that time she entered the hospital and was delivered spontaneously of a 3670 Gm baby. The puerperium was uneventful.

The patient was next seen Feb. 22, 1931. At that time she was eight months' pregnant and complained of difficulty in walking, which had existed for a period of four months, and stated that she was troubled by her legs 'giving out'. At the time of admission to the hospital she was unable to stand without assistance. Roentgenologic examination showed an abnormal separation of the symphysis pubis with relaxation at the sacro-iliac joints. By the use of a sacro-iliac belt and complete bed rest the patient became asymptomatic. She remained in the hospital and on March 14 was delivered normally of a 3,560 Gm baby after a seven hour labor. Two weeks later examination showed the separation of the symphysis to be much less but still greater than the limits of normal. The patient was discharged from the hospital on the fifteenth day post partum.

She was next seen in the clinic April 6, 1933, at which time she was seven months pregnant. There was considerable tenderness on palpation of the symphysis pubis and a complaint of pain in the left hip whether sitting or walking. Again a sacro-iliac belt was applied which gave considerable relief. She was delivered spontaneously on June 7 of a 3850 Gm baby.

The puerperium was normal except for the complaint of pain in the region of the symphysis and hip joints. During this postpartum period she was placed in a pelvic sling in a Balkan bed. On her discharge from the hospital she resumed the use of a sacro-iliac belt.

On her next admission to the hospital Aug. 18, 1934, she stated that her last period had occurred two months previously. Examination showed that the patient was pregnant. After the sixth month of this pregnancy she complained of marked pain in both hips which was aggravated by motion and weight bearing. Feb. 1, 1935, the pain was so severe that she was



Fig 2—Appearance Nov. 6 1935 at eighth month post partum

<sup>5</sup> A description of the technic may be found in Thoms, Herbert: The Obstetric Pelvis. Baltimore: Williams & Wilkins Company, 1935, p. 22.

unable to sit or lie with any comfort except at brief intervals. She was admitted to the hospital and placed in a pelvic sling which as before gave relief (fig 1).

Because of the unusual past history, delivery by cesarean section with sterilization was advised, to which the patient and her husband consented. Accordingly, on March 23 cesarean section followed by supravaginal hysterectomy was performed. Since the operation the patient has been more comfortable and the separation of the symphysis as shown by roentgenologic examination has decreased to about 0.5 cm. Nevertheless, at the present time she complains of marked tenderness in both gluteal regions which is worse at night, and the orthopedic consultant feels that eventually she will need an operation to correct the abnormal pelvic mobility (fig 2). In this instance trauma did not seem to be an etiologic factor. There was no history to support this as a cause and the labors were easy and spontaneous.

As early as 1812 LeGallois<sup>6</sup> pointed out that in the female guinea-pig the pelvis is only about half the size of the fetal head and that before parturition takes place the ligaments joining the pubis become thick, soft and malleable so that the pubes gradually separate. Knox<sup>7</sup> in 1839 observed a similar process in the pregnant seal, and Bailou<sup>8</sup> in 1854 described somewhat similar changes in the pregnant cow, particularly in the sacro-iliac joints. In 1932 Hisaw<sup>9</sup> was able to isolate from the blood of guinea-pigs, dogs, cats, sows, maies and rabbits during pregnancy a substance which, when injected into the virgin guinea-pig at estrus, would produce in a few hours the same relaxation of the pelvic ligaments noted in the same animal before parturition. More recently Gardner<sup>10</sup> has reported similar results in male mice following the injection of "folliculin benzoate".

From the investigations of the authors quoted it seems probable that the mechanism of pelvic relaxation during pregnancy in the human species is one of hormonal control.

#### CONCLUSIONS

1 Pelvic joint relaxation especially that of the symphysis pubis, is manifested in normal pregnancy.

2 From the examination of a series of 100 primiparous women at different stages of pregnancy it would appear that this relaxation is a progressive phenomenon.

3 The degree of pelvic relaxation accompanying pregnancy may assume serious proportions, as noted in the case presented.

4 Recognition of symptoms suggesting pelvic relaxation should demand thorough roentgenologic investigation in order that early treatment may be instituted.

5 Valuable information may be gained from the routine roentgen pelvimetry of all primiparous women.

<sup>6</sup> Quoted by Lynch F W. *The Pubic Articulations During Pregnancy*. Labor and the Puerperium. Surg. Gynec. & Obst. 30: 575 (June) 1920.

<sup>7</sup> Hisaw F L. *Sex and Internal Secretions*. 1932. Hisaw and others. J. Am. Chem. Soc. 54: 1932 quoted by Abramson, Roberts and Wilton.

<sup>8</sup> Gardner W V. *Pelvic Changes Occurring in Male Mice Receiving Large Amounts of Folliculin Benzoate*. Proc. Soc. Exper. Biol. & Med. 33: 104 (Oct.) 1935.

**Vitamin Insurance in Winter**—Vitamin D, like vitamin A, can be stored in the body to an important extent and the demands of pregnancy and lactation can be met in part by drawing upon the bodily store of the mother. As insurance, however, it is well to provide liberal intakes of vitamin D to pregnant and nursing mothers and to breast-fed as well as bottle-fed infants. Fish liver oils and some of their concentrates have the advantage of furnishing both vitamins A and D and are probably desirable supplements to the diets of all children during the winter months.—Sherman, H. C. *Food and Health*. New York: Macmillan Company, 1934.

## THE INCREASING IMPORTANCE OF PNEUMOTHORAX THERAPY IN PULMONARY TUBERCULOSIS

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Collapse therapy is not new, either in theory or in application, but after a long period of development has become increasingly popular in this country within the last decade. Artificial pneumothorax was suggested as a form of treatment for pulmonary tuberculosis by James Carson in England in 1821 as "simple, safe and complete." It was discussed by Forlanini in 1882, the very year in which Koch announced the discovery of the tubercle bacillus, and was applied by him clinically in 1888. It was practiced in this country as early as 1898 by John B. Murphy. A considerable number of papers on the subject have appeared regularly since but until recently collapse therapy has made relatively little progress in this country. Pneumothorax has been regarded as a sanatorium procedure, the recognized indications were narrow and the number of cases treated comparatively few. On the other hand, with the rapidly increasing application of all forms of collapse therapy, therapeutic pneumothorax is now probably overdone. Nevertheless those who have long been acquainted with the hardships and suffering caused by tuberculosis and its toll in human lives and are able to compare the results of the older and newer forms of management feel assured that the gain has been greater than the loss. What is needed is to train the new generation of tuberculosis specialists so that in seeking dramatic results they will not lose sight of fundamental and established principles. The operator should have a thorough grasp of the disease and of the physiologic processes of pneumothorax, otherwise there are potentialities for harm in the present enthusiasm.

What are the more important considerations that have contributed to this change in the treatment and management of pulmonary tuberculosis? They are apparent when one considers critically the obstacles that have to be overcome to obtain a lasting cure in tuberculosis of the lungs.

#### THE CONTROL OF THE TUBERCULOUS TOXEMIA

The most urgent problem in arresting clinical tuberculosis is control of the toxemia that always accompanies to a greater or less degree the active phases of the disease. It is apparent when one considers the physiopathologic aspects of pulmonary tuberculosis that there can be no beginning of cure until the toxemia is checked. The familiar symptoms of tuberculosis, such as fever, night sweats, loss of appetite, anorexia and rapid pulse are the constitutional manifestations of the toxemia caused by the pathologic process in the lung tissue. It is the resulting toxemia that makes the patient feel ill.

Whether the toxemia is acute or chronic, it always disturbs health and in turn favors a spread of the tuberculosis in the lungs. This spread results in more toxemia, and a vicious cycle is established. If the toxemia is of low grade the end may be delayed for years. The patient may even enjoy relatively good

From the Henry Phipps Institute, University of Pennsylvania School of Medicine.



health and be a useful and productive citizen with long periods of remission. These are the so-called "good chronics." On the other hand the toxemia may be acute and apparently out of all proportion to the extent of the disease in the lungs, and the patient may die in a few weeks.

To effect a cure one must first of all break through the vicious cycle and reverse the trend. With the toxemia eliminated or checked the fever disappears, the appetite improves and there is gain in weight and strength. This in turn gives an opportunity for the natural healing forces of the human body to come into play and resolution and scarring of the pulmonary lesion usually follows in due course, until the patient becomes anatomically cured.

Unfortunately there is no specific in the treatment of pulmonary tuberculosis to control the toxemia, no drug, similar to quinine in malaria, no antitoxin as in diphtheria, indirect methods must be depended on.

In the past, reliance has been placed on bed rest and less soundly, on climate and altitude, on fresh air and tonics, on milk and eggs. If one analyzes the reports from institutions in various parts of the country, some noted for their beneficial climate others not, the results are essentially the same, and except for incipient cases they are disappointing. There was little that could be accomplished for the larger number of patients, and many institutions until recently denied admission to all but "early" cases. A diagnosis of far advanced tuberculosis often meant death or a life of invalidism.

It slowly became apparent that the reason for failure in many cases was that even rest in bed was not sufficient rest for a tuberculous lung. The natural process of breathing was too much exertion, and although absorption of toxic products into the circulation might be diminished, it was not eliminated and the patient would continue to get worse and finally die. What was needed was intensive local rest for an indefinite time. This can be accomplished only by collapse therapy. When pneumothorax treatment is instituted, the diseased area of the lung is collapsed and squeezed together like a sponge. The source of the toxemia is shut off and further absorption of toxic products eliminated. For this reason the immediate results of artificial pneumothorax are often dramatic. The fever drops, the night sweats disappear, the appetite returns, the patient gains in weight and strength and almost over night the clinical picture is changed from one of despair to one of cheerfulness and hope. This is due to no other factor than the elimination of the toxemia. The lung itself is still diseased. The cavity and infiltration are still there as they were before collapse was instituted. If reexpansion is permitted all clinical symptoms of active tuberculosis return.

The first principle therefore, in the treatment of clinical tuberculosis is the immediate control of the toxemia at its source. The most rapidly effective way to accomplish this is to collapse the lung if possible by establishing an artificial pneumothorax. When the collapse is efficient it accomplishes more in a few weeks than could be brought about in months or even years by older methods. Pneumothorax materially improves the immediate prognosis of pulmonary tuberculosis.

The following summarized case report illustrates the dramatic effect of pneumothorax on the tuberculous toxemia.

CASE 1—S. S., a white man, aged 23 came under observation Dec 19 1929 with advanced tuberculosis involving the right upper lobe and complicated by hemoptysis. He had been

acutely ill for two weeks previously. His evening temperature ranged between 102 and 103 F and he was coughing up large mouthfuls of blood at frequent intervals. At times there was a fresh hemoptysis of several ounces. Under rest in bed and medication his condition did not improve and the outlook appeared grave. Pneumothorax was instituted December 21 and a partial collapse of the right lung obtained. The bleeding stopped almost at once and after the second inflation three days later disappeared entirely. The fever began to disappear and by the end of the nineteenth day the temperature had returned practically to normal. The clinical appearance of the patient was strikingly improved and at the end of six weeks he was permitted out of bed. His recovery has been uneventful. It has been nearly six years since he first became ill. He has been working and self supporting for the past five years without the loss of a single day because of his tuberculosis. The lung is practically healed and it would probably be safe to permit reexpansion, but the patient feels safer with the lung collapsed and has asked that the treatment be continued. The dramatic response of his tuberculosis to pneumothorax is indicated in figure 1.

#### IMPORTANCE OF TIME IN THE CURE OF TUBERCULOSIS

The second consideration in the treatment of tuberculosis is the factor of time. Cure is usually a matter of years. Even minimal tuberculosis requires a year or more for a lasting cure. The great mistake made in the past in treating tuberculosis was the assumption

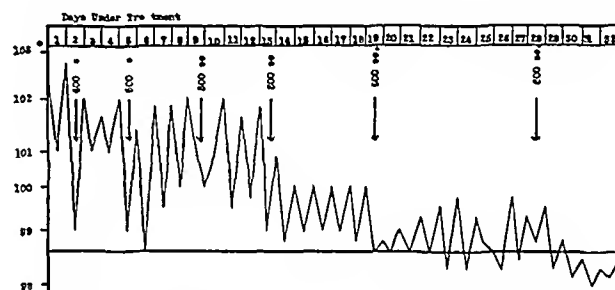


Fig. 1 (case 1)—Daily temperature curve in a case of acute tuberculosis treated by artificial pneumothorax (refills indicated by arrows).

that clinical well being was synonymous with cure. It has been shown that the patient may feel well, gain in weight and have a normal temperature while the disease in the lungs progresses. This is a common experience with the record clearly written in serial x-ray studies. For this reason relapses have been common following apparent cure of the disease after a prolonged sojourn in a sanatorium and many sanatoriums, regarding tuberculosis as a relapsing disease with a gloomy prognosis, have restricted admission to early cases.

The difficulty has been that the principle of rest for the diseased lung has not been applied long enough and in some cases could not be applied intensively enough, however faithfully the patient might "take the cure." Most physicians have centered their attention on the outward manifestations of clinical tuberculosis and have overlooked the evidence showing that anatomic improvement lags far behind clinical improvement. Moreover, many tuberculosis patients could not or would not remain in sanatoriums or stay in bed for the time required to obtain a lasting cure, particularly after they began to feel well.

Collapse therapy attacks this evil at its source. When therapeutic pneumothorax is instituted the lung is splinted and kept at rest for as long a period as the physician may desire, two years, five years or for the rest of the patient's life if need be. With the toxemia

controlled and the patient feeling well and able to work, all that is needed to keep him in good health is to maintain the pneumothorax sufficiently long to permit complete healing of the tuberculous lung. Serial x-ray studies are evidence of the remarkable healing power of nature, large cavities and massive infiltrations may in time disappear and leave little trace.

Regardless of how impressive the immediate results of pneumothorax may be, the physician must remember that a lasting cure always takes time. Experience has shown that in the majority of cases from three to five years is necessary, and in some instances longer. There can be no fixed rule as to how long pneumothorax should be maintained. If a general rule may be ventured, it would be to continue pneumothorax for at least a year after the x-ray evidence indicates complete healing. In the majority of cases this means from three to five years, depending on the extent and severity of the disease at the time treatment was instituted. Early cases naturally require less time, perhaps two years. No patient should be started on pneumothorax therapy with the idea that within six months or a year he will be cured and that the treatment can be safely stopped at the end of that time. Figures 2 and 3 show

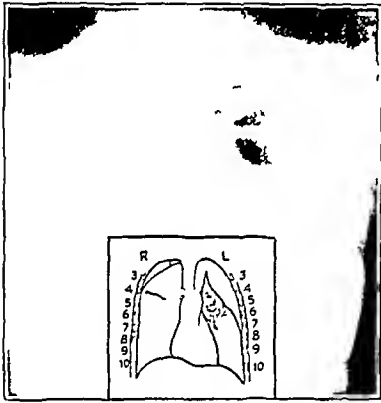


Fig. 2—Chest of a white woman aged 22, June 17, 1932. Bilateral pneumothorax shortly before the pneumothorax on the right was discontinued after three years of uninterrupted successful collapse. Except for a few fibrous strands in the right upper lobe the lung was apparently free from disease. The sputum was persistently negative for tubercle bacilli and the patient was clinically well.

recurrence of advanced disease after pneumothorax treatment of three years' duration was discontinued shortly after x-ray evidence of apparent cure. The lengthy period of treatment is no particular hardship. It is not even an important inconvenience and all in all is a very small price to pay for good health. Once the toxemia is eliminated, usually in the first few months, the patient can work and live a normal, useful

life within reasonable limits. Women may bear children and young people may continue with their studies. There is no reason why in the light of modern experience a tuberculous patient, properly treated, need have his life's ambition thwarted and be forced to live the life of semi-invalidism. The following case illustrates the possibilities of modern collapse therapy.

CASE 2—S. T., a white woman, aged 27, seen in consultation April 19, 1932, had far advanced bilateral tuberculosis with cavity formation and positive sputum (fig. 4). She had not been well for ten months previously following the birth of a daughter in 1931 and complained of a hacking cough, unexplained weakness and loss of weight and some expectoration. Six weeks after delivery she had a small hemorrhage of about 2 ounces (60 cc). During April she had frequent night sweats. Her evening temperature averaged close to 100 F. Pneumothorax therapy was instituted at home on the right side on April 26, one week after the diagnosis was made and a satisfactory collapse was established. June 22, phrenic evulsion was performed on the left side. October 18 the patient had a tonsillectomy under local anesthesia for frequent sore throats. Her health has steadily improved. Her sputum became persistently negative for tubercle bacilli and by December 1932 she

assumed full household responsibilities. In 1933 she became pregnant (fig. 5) and on Jan. 19, 1934, she gave birth to a healthy baby girl without any deleterious effect to her health. She is still receiving pneumothorax treatment (December 1934) for the right lung, and the left diaphragm is still elevated (fig. 6). Her lungs, while still diseased, have improved considerably and she is as active as any normal woman.

The unique ability of the induced pneumothorax to keep a diseased lung at rest indefinitely accounts for the larger percentage of cures among such patients as compared with those treated without pneumothorax. Rist has pointed out that the difference may be as great as 52 per cent as compared to 85 per cent. In other words, by his calculation a patient with moderately advanced tuberculosis treated with pneumothorax has a chance for ultimate recovery six times as great as the patient treated without pneumothorax.

#### THE ECONOMIC AND SOCIAL PROBLEMS IN TUBERCULOSIS

Another important consideration in the treatment of tuberculosis is the proper management of the underlying social and economic problems that are so intimately associated with this disease.

The great majority of patients are persons who depend for their bread on their daily earnings. If it is made impossible for such an individual to keep his job, or if too heavy a financial burden is put on him when he attempts to provide medical care for a member of his family, it is difficult or impossible for him to solve his particular economic problem. Many, given no alternative, after a heroic effort, which quickly dissipates their meager resources, are sooner or later forced to accept charity and free medical care. Social service studies have repeatedly shown that, of all diseases responsible for patients seeking relief in normal times, tuberculosis occupies first place. This has been a necessary corollary when treatment necessitated migration to a sanatorium located at a distance and a sojourn there for months and years. Only a relatively small number can afford such luxury, and, even among these, financial sacrifices have been common. Pneumothorax therapy has in many instances eliminated the necessity for sanatorium care and other expensive hospitalization. It can be safely instituted at home or in a local hospital. The majority of patients are more comfortable at home, where they usually have better quarters and better food. If the collapse is effective they gain in weight and strength rapidly in their accustomed surroundings and within a short time are able to take up their daily work again without prejudice to their health.

These facts are so well established today that more and more tuberculosis specialists, particularly in the larger cities, treat their patients at home with collapse therapy instead of sending them away. This change in management incidentally helps to reduce the cost of medical care and to maintain the private relationship between patient and physician. It has made it possible for a considerable number of patients who otherwise would be forced to seek free medical care in the city or state institution to receive skilled private medical care in their homes.

If the toxemia is not severe and the disease not too far advanced, if it is confined to one lung and if a satisfactory collapse can be established—conditions found in about 50 per cent of the tuberculous—1 patient may return to work in from one to three months after pneumothorax treatment has been in-

uted More is accomplished within this short time and at a relatively insignificant cost than would have been thought possible under any other form of treatment heretofore

The following is an example of the economic value of artificial pneumothorax in a young adult with advanced, active tuberculosis of one lung

CASE 3—E F, a white woman, aged 25, was diagnosed at the Henry Phipps Institute, April 20 1930, as suffering from an acute tuberculous consolidation of the right upper lobe. The temperature was 102 F and the pulse 100. Rales were easily detected in the consolidated area and the blood sedimentation rate was rapid, with an index of 24 mm. The sputum was positive for tubercle bacilli. The patient refused hospitalization and sanatorium care. Artificial pneumothorax was started at home on May 2 and a good collapse was obtained. Three weeks later, against advice, she resumed her position as a clerk in a department store, free from all symptoms and apparently enjoying good health. Her sputum became free from tubercle bacilli. Five years has now elapsed. The patient has not lost a day from work because of illness. She looks well, is free from all symptoms and the consolidated area has entirely cleared up. A recent roentgen study disclosed an apparently healthy lung with a number of fibrous strands in the previously diseased area.

This has been accomplished under artificial pneumothorax with the patient at work and self supporting. The only inconvenience to the patient was the refills. Artificial pneumothorax is the only treatment that can meet the urgent financial needs of such patients, enabling them to work without prejudice to their own physical welfare and without exposing either their families or their fellow workers to contagion.

Even in the poor the disease can be managed efficiently in their home environment by means of collapse therapy. The ambulatory pneumothorax clinic at the Henry Phipps Institute, organized in 1931 in the heart of the slum district of Philadelphia, where poverty and bad hygienic conditions are common, treats about fifty patients a morning with results that compare favorably with similar groups of patients treated in well regulated sanatoriums. The field pneumothorax clinic of the Chicago Municipal Tuberculosis Sanitarium and similar clinics in other metropolitan centers report similar results. The economic and health value of such a plan to the community is obvious.

Sometimes there are other factors in addition to the economic that contribute to the hardships and tragedies of tuberculosis. Case 4 illustrates this point.

CASE 4—A dentist was stricken with active tuberculosis of the lungs and positive sputum just as he was becoming established in his profession. Without ambulatory pneumothorax, residence in a sanatorium for at least six months or a year would have been necessary with probable loss of his practice and of his many valuable contacts established after hard work and patient effort.

He was seen in consultation on June 12 1933. At that time he had advanced tuberculosis of the right upper lobe with a cavity 3 by 4 cm., cough and positive sputum and an evening temperature of 99.4 F. He was greatly disturbed about his social problems, above all else he did not want to close his office and go away. In spite of the advanced character of his disease it was confined to one lung and his general condition was good. He was well nourished and toxemia was not pronounced. It was an easy matter for him to announce that he was going away for a two weeks vacation. During this time he remained at home and pneumothorax was instituted. Fortunately the collapse was satisfactory, the cavity closed almost immediately, the sputum became negative and the fever disappeared. At the end of two weeks he was in his office again practicing dentistry. He was instructed to rearrange his hours and to restrict his work within certain easy limits.

Every spare moment he rested on a couch in his office. Little by little his working hours were increased. In the two and a half years since he was first placed under treatment pneumothorax has been maintained and at present he receives a refill every three weeks. His lung is practically healed and there is no trace of the cavity. His life is normal in every respect. What other form of treatment could have accomplished as much in so short a time?

#### THERAPEUTIC PNEUMOTHORAX AS A PUBLIC HEALTH MEASURE

The public health aspect of tuberculosis must never be overlooked. Pulmonary tuberculosis is a contagious disease and spreads from individual to individual through continued intimate contact. In a sense the physician who undertakes the treatment of a tuberculous patient becomes the public health officer responsible for the welfare of the entire family and indirectly of the community. The physician must therefore always be on the lookout for sputum containing tubercle bacilli and his treatment and management of the case must take into account this vital factor. Education of the patient and his family in the proper disposal of the sputum is of course, a help but a more effective method is to render positive sputum negative.

When the diseased lung is satisfactorily collapsed tubercle bacilli almost invariably disappear from the sputum. This occurs so regularly after an effective collapse has been established that, if the sputum remains positive, it is evidence that the diseased area is not as effectively collapsed as was believed or that there is active disease in the contralateral lung. As soon as the sputum is freed from tubercle bacilli

by collapse the danger to others in treating tuberculosis at home is eliminated.

If by such a relatively simple procedure as pneumothorax a goodly number of tuberculous patients can be rendered harmless to those about them through the disappearance of tubercle bacilli from the sputum there is in this procedure one of the most powerful weapons in the control of tuberculosis. Artificial pneumothorax must therefore be regarded as a public health measure of the first magnitude.

#### IMPROVEMENT IN PNEUMOTHORAX TECHNIC

Another factor that has contributed to the popularity of pneumothorax is a better understanding of its method of operation. There has been considerable improvement in technic and the routine use of the fluoroscope and roentgenograph has placed the treatment on a sound scientific basis. When Forlanini practiced pneumothorax therapy it was believed that the entire lung, both the diseased and the healthy area,



Fig. 3—Aug. 2 1934 twenty six months after the pneumothorax on the right was discontinued. There was recurrence of widespread tuberculosis in the right lung with several small cavities in the upper lobe. A phrenic crushing and scalenotomy was performed but has failed to close the cavity. The sputum is positive for tubercle bacilli and the patient is confined to bed for the most part (December 1934). During this period the disease in the left lung has steadily improved under pneumothorax treatment to the point of almost complete clearing.

had to be collapsed, and the lung was shrunken to a sausage shaped mass lying close to the heart. Under such conditions treatment was necessarily confined to strictly unilateral cases. But it has long since been established that all that is necessary is collapse of the diseased part, while the healthy tissue is permitted to function. This is the principle of selective collapse. With this type of therapy, little or no strain is placed on the contralateral lung, and very often, in fact, when disease is present in the "good side," this also improves



Fig. 4 (case 2)—April 19 1932. Far advanced bilateral active tuberculosis with a cavity in the right upper and one near the left hilus. Duration of symptoms ten months following childbirth.

with the improvement of the treated lung. Furthermore, selective collapse makes possible bilateral pneumothorax or the simultaneous collapse of parts of the two lungs. This improvement in technique has materially increased the usefulness of artificial pneumothorax and widened its indications, so that it can be applied to an increasing number of patients. There are many institutions

today in which pneumothorax is applied to 75 per cent or more of the tuberculous patients, in marked contrast to the usual 5 to 10 per cent of a decade ago.

#### INDICATIONS AND CONTRAINDICATIONS FOR PNEUMOTHORAX TREATMENT

It follows that the trend today is to institute pneumothorax or some other form of collapse therapy whenever possible and to do it as soon after the diagnosis is established as is practicable. In the average case there is nothing to be gained by waiting a few months to see how the patient will respond to bed rest alone. The exceptions to this rule are taken up in later paragraphs under contraindications.

Such complicating conditions as diabetes or pregnancy call for immediate application of pneumothorax therapy. The same is true for tuberculosis of the larynx, which at times will improve with surprising rapidity with collapse of the diseased lung. In fact, the many conditions that formerly were regarded as contraindications are today added indications.

**Latent or Asymptomatic Tuberculosis**—Is pneumothorax indicated in latent tuberculosis? Opie and McPhedran have defined latent tuberculosis as tuberculosis of the lungs without physical signs or symptoms but clearly demonstrable in the x-ray film. This definition does not indicate that the disease is necessarily harmless. Not infrequently the tuberculosis is active and advanced, as shown by serial x-ray films and also in blood sedimentation studies, and if allowed to go unchecked will in time result in clinically manifest tuberculosis with positive sputum and cavity formation. On the other hand there are a considerable number of patients with latent tuberculosis in whom the disease will never become of clinical importance.

Obviously, common sense should be the guiding rule as to whether pneumothorax is to be instituted in latent tuberculosis. If the disease is inactive it may be a

healed tuberculosis, and for all practical purposes except for periodic examination, no supervision is indicated. The diagnosis is purely an anatomic one. On the other hand, if the disease appears active and advanced the patient should be treated with as much seriousness as if he already had manifest clinical tuberculosis. These patients are potentially curable with relatively little effort, but there is no need for the immediate institution of pneumothorax therapy. The situation can be explained to the patient and his family and the patient ordered to bed for about three months. If he improves, this period of rest can be continued and the patient treated along the established hygienic dietetic-rest regimen. On the other hand, if the disease shows a tendency to progress or if the patient objects to prolonged bed rest, pneumothorax intervention is definitely indicated. In the Negro race, because of the great tendency of the disease to progress rapidly and with little warning, the latent period—the period before symptoms develop and before tubercle bacilli make their appearance in the sputum—is the most favorable time for pneumothorax intervention.

**Closed Tuberculosis**—What has been said for latent tuberculosis applies equally well for clinically closed tuberculosis, with the clinical signs and symptoms of tuberculosis but no tubercle bacilli in the sputum. If the disease is not advanced, bed rest alone should be tried first. But if after a trial of some three months the roentgenogram, regardless of apparent clinical improvement, shows a tendency for the disease to progress, pneumothorax treatment may be instituted without further delay. If the sputum should at any time become positive or if the disease is advanced when the diagnosis is first made, pneumothorax should be instituted at once for public health reasons.

**Far Advanced Tuberculosis**—It has already been emphasized that pneumothorax is not a specific. It produces its results by resting the lung, eliminating the toxemia, perhaps by shutting off the oxygen supply to the tubercle bacilli and by favoring fibrosis. It helps to set in motion the natural forces of the body for recovery. If, however, the patient has not enough resistance to tuberculosis, or if too much lung has been destroyed, recovery cannot be expected. There must come a time, therefore, when the application of pneumothorax is a wasted effort. Just when this is true may be difficult to decide in individual instances. If the disease is advanced in the two lungs to the extent that 50 per cent or more of the total lung tissue on both sides is destroyed, pneumothorax will produce little or no result and may be said to be contraindicated. If pneumothorax is applied to some of these patients it may even shorten life by interfering with the fine

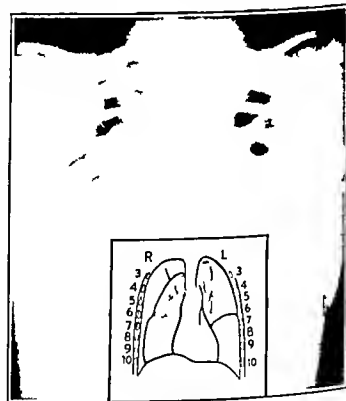


Fig. 5 (case 2)—Dec 12 1933 twenty months later. Pneumothorax on the right side and phrenic evulsion on the left. There has been marked clearing in both lungs with the cavities no longer visible. Sputum persistently negative for tubercle bacilli. Patient pregnant and near term. Note the very high position of the left diaphragm and the distended colon below. No noticeable dyspnea.

balance that the patient has somehow managed to build up, enabling him to enjoy a certain degree of well being

Pneumothorax should not be instituted in obviously dying patients with hectic fever and cyanosis, in whom the disease is widely scattered in both lungs. Likewise pneumothorax should not be instituted in those who have some other disease which in itself will kill the patient or keep him a confined invalid, such as cancer or progressive deforming arthritis.

**Hypertension and Heart Disease**—Patients with definite hypertension—180 mm or more—do not as a rule do well under pneumothorax therapy. They do not tolerate interference with the intrapleural pressure, and marked shortness of breath with a broken cardiac compensation may result. These patients are best treated by the usual dietetic-hygienic-rest regimen. The same holds true of patients who give a history of cardiac decompensation.

On the other hand, the presence of an organic valvular lesion with good compensation is not a contraindication. Excellent results can be obtained in the presence of definite mitral stenosis and regurgitation.

**Age**—This is at times considered a contraindication. However, pneumothorax has been given to infants 5 months old and to adults in their late sixties and older. As a general rule, however, patients beyond 50 are easily upset when the intrapleural pressure is changed by pneumothorax therapy. They become noticeably short of breath even when small quantities of air are introduced. This shortness of breath is presumably due to the arteriosclerotic changes in the larger vessels and to a weakened cardiac musculature, which cannot accommodate themselves readily to the increased intrapleural pressure. If, however, the disease is progressive and the prospects for a cure are good, one should not hesitate to employ pneumothorax therapy and adjust the technic accordingly.

**Asthma**—This is often considered a contraindication. If the prospects for a cure are good however, the asthmatic patient who has pulmonary tuberculosis should have pneumothorax treatment. Such patients often do well in spite of repeated attacks of asthma. In rare instances the asthma is due to allergy caused by the tuberculosis, and the patient may be cured of his asthma at the same time that the tuberculosis is cured.

**Extensive Adhesions**—Pneumothorax should not be forced in those cases in which no free pleural space exists, nor should it be continued when it becomes evident that a cavity cannot be closed because of extensive, inoperable adhesions. If one persists in pneumothorax therapy under such circumstances air embolism and sudden death may result or tuberculous empyema and other serious complications may set in. These patients are not suitable for pneumothorax but may be helped by phrenicectomy or thoracoplasty. The important thing is for the operator not to lose valuable time with an ineffectual pneumothorax.

#### COMPLICATIONS

In a discussion of pneumothorax therapy it is important to indicate its dangers and complications. Like any other form of treatment pneumothorax has its dangers. These should always be kept in mind but they can be exaggerated. One should always balance the possible complications of pneumothorax therapy against the alternative of not instituting collapse treatment, for passive treatment has its complications also.

It is also important to keep in mind that the earlier in the course of the disease pneumothorax is instituted the less will be the likelihood of serious complications.

**Air Embolism**—The most important single complication is air embolism. It is the cause of practically all sudden deaths following pneumothorax treatment. It occurs in some degree about once in 1,500 pneumothorax treatments and in less than 0.5 per cent of all treated cases. It is not fatal however, in this number as in the majority of instances the patient recovers. When it does occur it is almost invariably due to faulty technic, of which the operator may not have been aware at the time. A careful analysis of such cases will usually convince one that there has been an attempt to inflate the pleural cavity when there were definite warnings that the needle was not in the proper place or that no free pleural space was present. The technic of pneumothorax in the average case is so easy that the operator, unless he has seen a sudden death from artificial pneumothorax, may look on the treatment as simplicity itself, devoid of all danger, and in his ignorance take chances in difficult situations. The danger of air embolism is naturally greatest when pneumothorax treatment is first instituted, and there should be an unaltered rule that no one but a thoroughly experienced operator should give the initial treatment. This complication, while always potentially present, can be eliminated almost entirely by close attention to all details of technic, by routine fluoroscopic studies before each refill and by a keen awareness of possible danger on the part of the operator.

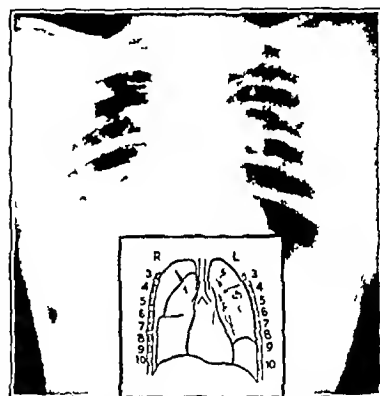


Fig. 6 (case 2)—Nov. 3, 1935 twenty-one months after giving birth to a healthy baby girl. There has been uninterrupted healing in both lungs. The patient is symptomatically well and able to work (December 1935). Note the lower position of the diaphragm following childbirth. The left side is still elevated as a result of the phrenic nerve evulsion.

#### Pleural Shock

Dizziness or discomfort after a pneumothorax refill is not uncommon, but serious consequences from pleural shock are extremely rare. When such symptoms occur and end in death they are almost invariably due to air embolism and not to pleural shock.

**Pleural Effusions**—Pleural effusions during pneumothorax therapy are very common. They fall into two distinct groups.

(a) **Pleural Transudates**—Pleural transudates occur sooner or later in 90 per cent or more of patients receiving pneumothorax treatment. They seldom rise above the eighth posterior rib and in time disappear. They are of no clinical importance. They require no treatment and should not be considered a complication. In fact the small effusion often acts in a beneficial way by decreasing the permeability of the pleura to air and making it possible to lengthen the intervals between refills. It is the result of the natural reaction of the pleura to the presence of a foreign substance, the introduced air.



(b) *Tuberculous Pleurisy* Tuberculous pleurisy, acute or chronic, is relatively common in tuberculosis and may occur at any time in the course of the disease, regardless of the type of treatment instituted. Occasionally it appears that an acute pleurisy is precipitated by pneumothorax treatment, but acute pleurisy is not more common during pneumothorax treatment than without it. It occurs in about 5 to 10 per cent of treated cases. About 50 per cent of these acute pleurisies disappear spontaneously or after aspiration and air replacement and do not interfere with the ultimate cure of the patient.

(c) *Tuberculous Empyema* Approximately 50 per cent of all tuberculous pleurisies persist in spite of repeated aspiration and in time become purulent. Some of these will respond to continued aspiration and disinfectant oleothorax and in time will clear up completely. In others the fluid persists but accumulates very slowly and does not interfere with the general health of the patient. If the lung is effectively collapsed, the sputum negative and the patient doing well clinically, the pneumothorax should be continued until a cure has resulted. The small empyema will disappear when the lung is ultimately reexpanded. On the other hand, if the collapse is ineffective and there is still an open cavity, thoracoplasty is the best solution. In all events tuberculous empyema properly treated is not the serious complication that it was once believed to be. Furthermore, it occurs chiefly in far advanced cases with large cavities and can be avoided by instituting pneumothorax earlier in the course of the disease.

*Spontaneous Pneumothorax*—This may be due to the induced pneumothorax, as when an adhesion gives way at its visceral attachment, especially when the cavity is situated superficially, or it may occur in the natural sequence of events, because of the progressive character of the tuberculosis in spite of treatment. At least 5 per cent of all tuberculous deaths in patients who never had pneumothorax treatment are from spontaneous pneumothorax. This incidence does not appear to be greater under pneumothorax treatment, and, when it does take place, the chances are that it would have occurred with or without collapse therapy in the course of progressive disease. The practice of forcibly stretching adhesions to close cavities accounts for some spontaneous ruptures and should be abandoned. The possibility of these spontaneous pneumothoraces can be materially reduced by early intrapleural pneumolysis.

*Disease in the Contralateral Lung*—Spread of the disease in the opposite lung does occur under pneumothorax treatment, but much less frequently than under passive treatment. In the majority of instances the reverse is true—the opposite lung improves following improvement in the treated lung. If necessary, however the contralateral lung can be treated by the bilateral induction of pneumothorax or by phrenicectomy. Some of the extensions of the tuberculosis in the other lung are due to faulty technic in establishing a collapse on the badly diseased side and can be prevented.

*Other Complications*—The other complications such as displacement of the mediastinum, subcutaneous emphysema and pneumothorax fever although inconvenient are of little importance. They do not interfere with the treatment nor do they endanger the welfare of the patient.

#### COMPLICATIONS OF PASSIVE TREATMENT

Treatment without pneumothorax is also not without danger and against the complications of collapse therapy just described must be placed those of passive

treatment. Reference has already been made to spontaneous pneumothorax and tuberculous pleurisy. In addition to these there are pulmonary hemorrhage and metastasis.

*Pulmonary Hemorrhage*—Pulmonary hemorrhage is often insignificant, but it is always a potential source of danger and may result in sudden death. Not infrequently there follows an acute spread of the tuberculosis in the lungs, which may cause death or leave the patient a lifelong invalid. Pulmonary hemorrhage does not occur during pneumothorax treatment when the operation has succeeded in closing the cavity and collapsing the diseased area of the lung.

*Spread of Tuberculosis in the Lungs*—Once tuberculosis has become manifest clinically, its tendency is to spread and involve more and more lung. This may occur by way of the blood stream, the lymphatics or the bronchi. Bronchogenic spread is common and is due in large part to the associated cough. It is frequently the cause of disease in the contralateral lung. Much of this spread can be prevented by timely pneumothorax intervention.

*Metastasis to Other Organs*—Tuberculosis of the lungs may metastasize early in its course to the larynx, intestine or kidneys. It may lead to milary tuberculosis or to tuberculous meningitis. Every tuberculous patient faces the possibility of a spread of the tuberculosis to these vital organs. Timely effective pneumothorax goes far to assure the patient against these complications.

#### SUMMARY

During the past decade, pneumothorax therapy has been applied to an ever increasing number of tuberculous patients, so that today many institutions report 75 per cent or more of their tuberculous patients as receiving artificial pneumothorax treatment. This is in striking contrast to the usual 5 to 10 per cent of five to ten years ago.

The marked enthusiasm for collapse therapy is due in large part to its unique ability to solve many of the pressing problems confronting the tuberculous patient. It often does this in a dramatic and at the same time scientific manner.

It is the most effective single means for the immediate control of the tuberculous toxemia that always accompanies to a greater or less degree the active phases of the disease. With the toxemia eliminated, the patient gains in weight and strength and within a relatively short time is able to take up his daily work again without prejudice to his health. In many instances it offers the one solution to the underlying social and economic problems that are so intimately associated with this disease.

Artificial pneumothorax materially improves the ultimate prognosis. The induced pneumothorax can keep a diseased lung at rest indefinitely, and this accounts for the larger percentage of cures among such patients as contrasted with those treated without pneumothorax. It has been calculated that a patient with moderately advanced tuberculosis, treated with pneumothorax has a chance for ultimate recovery six times as great as the patient treated without pneumothorax.

Artificial pneumothorax is a public health measure of the first magnitude. It is the surest and quickest method for eliminating tubercle bacilli from the sputum and with the establishment of field pneumothorax clinics for the mass treatment of tuberculous patients it has become the solution to the perplexing problem of inadequate hospital facilities and should in time

result in a steady reduction in the mortality and morbidity rates of pulmonary tuberculosis.

Pneumothorax therapy has its dangers and complications, but they can be overemphasized. By and large they are not more serious than the complications of passive treatment and then frequency and severity can be materially reduced by proper technique and management.

The development of selective and simultaneous bilateral pneumothorax has materially widened the indications for pneumothorax therapy and the contraindications have been correspondingly narrowed to relatively few conditions.

In view of all the considerations that have been discussed bearing on the social economic and public health problems of pulmonary tuberculosis and in view of the fact that many more patients will do well and stay well under pneumothorax treatment it would appear that with all the dangers and inconveniences of pneumothorax therapy it is the most efficient method for treating pulmonary tuberculosis in its various stages.

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## GASTROSTOMY FEEDING

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A recent review of gastrostomy diets in a number of hospitals has demonstrated that a knowledge of the general principles of such feeding is often wanting. In the smaller hospitals this is perhaps due to the infrequency with which the problem is met. The surgeon passes to the nurse the task of administering a liquid diet of her own selection. This invariably reduces the diet to one of milk with the occasional substitution of egg-nogs prepared even to the vanilla flavoring. Cups of tea or coffee, or beef broths, or malted milk, are often given in unawareness of their low value to a patient in serious need of calories and vitamins. In large hospitals it is customary to feed such patients with a liquid "high caloric mixture" made up of raw eggs, heavy cream, milk and lactose to provide a very unnatural diet in which about 60 per cent of the caloric requirements are satisfied in the form of fats.

My associates and I have prepared a gastrostomy diet from our experience with tube feeding in cases of carcinoma of the mandible, larynx, pharynx or esophagus. After resections of the mandible or larynx, it has often been found desirable to feed the patient by nasal catheter for the first few days after operation until the wound is somewhat healed. In carcinoma of the pharynx, larynx or esophagus, a gastrostomy is often desirable to tide the patient over the period of increased dysphagia at the height of the edema that invariably follows effectual doses of external or interstitial irradiation of tumors in these regions. Relief from the necessity of swallowing food often permits the edematous wall of the diseased esophagus to shrink to a remarkable degree, and the patient may then find it possible to swallow liquid foods again. Patients with carcinoma of the esophagus may be kept properly nourished for a longer period of time on an optimum diet, though all eventually lose weight. Those patients

who are dehydrated or poorly nourished before operation usually gain in weight.

In all these conditions the stomach may be considered as an essentially normal organ except for the presence of the gastrostomy tube and the occasional encroachment of a carcinoma of the esophagus on the cardia of the stomach. Digestion in the stomach may be assumed to be normal except in the occasional case with complete obstruction of the esophagus and total loss of saliva. Chevalier Jackson<sup>1</sup> observed that children with esophageal obstruction being fed by a gastrostomy tube failed to gain in weight until dilatation of the esophagus had been sufficient to permit saliva to pass into the stomach or until the lost saliva was returned by tube. This suggests that the saliva is of considerable importance in the proper digestion of food.

The only barrier to the administration of the ordinary "house diet" is the size of the lumen of the tube; therefore the gastrostomy diet should approximate the normal diet so far as is practicable to the satisfaction of the caloric, mineral, vitamin and fluid requirements of the body. The desirability of a diet with simple ingredients of low cost is obvious. The cost of the diet here outlined has been calculated from current food prices to be between 70 and 80 cents a day.

The use of lactose as a source of carbohydrate in formulas for tube feeding appears to be universal, but I am unable to find any basis for its popularity save tradition. It has been extensively used in high carbohydrate diets administered by mouth, as in diets for patients with typhoid, in which its chief merit lies in the fact that it is less sweet than cane sugar while possessing the same caloric value. Palatability, however, need not be considered in tube feeding. Hosoi, Alvarez and Mann<sup>2</sup> state that "the high percentage of dry residue obtained after giving lactose is of interest because this substance is supposed to be almost unabsorbable by the mucous membrane of the bowel. For this reason it may increase the fluidity of the intestinal contents in much the same way as does magnesium sulfate." The tendency of lactose to produce diarrhea and flatulence is well known clinically. Koehler and Allen<sup>3</sup> in a recent experimental study of the nutritive value of lactose found that from 40 to 50 per cent was lost so far as weight or energy relationships were concerned in the rat. The cost of lactose is appreciable and at present retails at from 50 to 75 cents a pound.

Corn syrup is a very satisfactory and inexpensive form in which the carbohydrate supplement may be obtained and has been used extensively in infant feeding. Several of the simpler sugars are found in this syrup, perhaps a desirable feature in the cases in which there is an absence of salivary digestion.

A very thin cereal gruel of smooth texture is necessary to prevent plugging the tube. Some of the prepared long-cooked cereals marketed for infant feeding fill these requirements and oatmeal is satisfactory if cooked for an hour or more and then strained through a fine strainer. The resulting mucoid cereal mixes well into the feeding mixture and does not settle out even after standing for twenty-four hours.

1 Jackson Chevalier. Saliva in Nutritive Processes. Arch. Pediat. 10: 324 (May) 1923.

2 Ho oi K, Alvarez W. C. and Mann F. C. Intestinal Absorption. Arch. Int. Med. 41: 112 (Jan.) 1928.

3 Koehler A. E. and Allen S. F. The Nutritive Value of Lactose. J. Nutrition 8: 377 (Oct.) 1934.

Cracker meal has been tried as a supplementary food, since it has a high caloric value and requires no cooking, but it has an undesirable tendency to form a lumpy mass which settles to the bottom of the mixture. Other meals and cereals, even though finely divided, tend to be granular and also settle to the bottom of the liquid mixture.

Whole milk is a satisfactory liquid vehicle for the diet. Peptonized milk has been recommended for use in gastrostomy tube feeding, but it would seem to be unnecessary to peptonize the milk before administration. Malted milk is too expensive in proportion to its food value.

A large number of raw eggs have been added to the gastrostomy diet in some hospitals, but the experiments of Hosoi, Alvarez and Mann<sup>2</sup> showed that raw egg albumin produced a dry residue of 85.9 per cent in dogs and ran out of the rectum quite unchanged. Cooked eggs are recognized to be more completely

benefits of liver in secondary anemia is not sufficiently convincing to recommend its use for these patients, and its preparation, in small amounts of such consistency that it can be given by tube, will be found to be very trying.

Preparation of the whole day's feeding at a time as a formula mixture, instead of preparing multiple individual feedings, has been transplanted from the current practice in infant feeding. It has seemed desirable, however, to retain one special feeding during the day for the administration of the iron, scraped beef, fruit juice and halibut liver oil. The fruit or tomato juice is a convenient vehicle for the special feeding, and the acidity of the fruit juices has a tendency to curdle the milk if placed in the formula mixture. The halibut liver oil is added to this special feeding to avoid the danger of loss of its small volume. It has been thought safer from a bacteriologic standpoint to give the scraped beef directly in the special feeding rather than to

TABLE 1—Postoperative Diet

Days Day of operation	Hours of Feeding	Interval Between Feedings	Number of Feed- ings	Formula at Each Feeding	Total Formula	Water at Each Feeding	Formula Mixture			Total Daily Fluids 64 oz	Total Calories <sup>a</sup> 1600
							Milk	Corn Syrup	Supplement 2 000 cc 10% dex tro intra venously		
1st day after operation	7 a m to 10 p m	1 hr	16	1 oz	16 oz	½ oz	14 oz	2 oz	1 500 cc 10% dex trose intra venously	66 oz	1160
2d day after operation	7 a m to 10 p m	1 hr	16	2 oz	32 oz	1 oz	26 oz	6 oz	750 cc 10% dex trose intra venously	73 oz	1640
3d day after operation	7 a m to 10 p m	1 hr	16	3 oz	48 oz	1 oz	40 oz	8 oz		64 oz	1810
4th day after operation	7 a m to 10 p m	1½ hr	11	4 oz	44 oz	1 oz	31 oz	8 oz	2 eggs 1 oz butter	55 oz	1940
5th day after operation	7 a m to 10 p m	1½ hr	11	5 oz	55 oz	1 oz	37 oz	8 oz	4 egg 2 oz butter	66 oz	2000
6th day after operation	7 a m to 9 p m	2 hr	8	6 oz	48 oz	1 oz	30 oz	8 oz	4 eggs 2 oz butter	56 oz	2080
7th day after operation	7 a m to 9 p m	2 hr	8	7 oz	56 oz	1 oz	38 oz	8 oz	4 eggs 2 oz butter	64 oz	2100
8th day after operation	8 a m to 8 p m	2 hr	7	10 oz	60 oz	1 oz	32 oz	8 oz	Full diet (see table 2)	77 oz	3000

digestible than raw eggs and do not produce diarrhea. We have therefore recommended the use of soft poached eggs. Soft boiled eggs would be equally satisfactory but there is a greater chance that they will be cooked too hard. Poached eggs may be pushed through a strainer and, with the addition of a small amount of milk, make a creamy mass that may be added to the diet mixture.

Butter has been used as the supplementary source of fat in lieu of cream, this has previously been suggested by Watson.<sup>4</sup> Fat is cheaper in the form of butter and a quantity may be kept more easily over a number of days. Melted butter emulsifies well in the large quantity of liquid and does not have a much greater tendency to rise to the top than does cream.

Vegetable purees provide a small amount of roughage in the diet, and the desirable elements which greens possess are supplied if spinach is used. The task of preparation of the purees may be obviated by the use of small cans of vegetables marketed for infant feeding. These can be purchased quite as cheaply as small quantities of strained vegetables can be prepared in the home.

We have recommended that beef scrapings, best obtained from "top round" of beef, be given as an additional source of animal protein. Evidence for the

include it in the diet mixture to stand for periods up to twelve or more hours.

Accessory factors have been adequately provided in the diet. Supplementary vitamins are given in the form of halibut liver oil, brewers' yeast and orange, grapefruit or tomato juice. The use of halibut liver oil has seemed to eliminate the objectionable regurgitation complained of by some patients when cod liver oil is used. Supplementary iron is given to delay the secondary anemia that inevitably occurs in the patients with advanced carcinoma. This has been given in the form of a 50 per cent solution of ferric ammonium citrate, but ferrous sulfate crystals may be used as an alternative. From table 2 it may be seen that the established daily requirements for calcium, 0.68 Gm, for phosphorus, 1.32 Gm, and for iron, 0.015 Gm, have all been generously satisfied. Copper, cobalt and manganese, and the essential amino acids, as well as vitamin E and iodine may safely be omitted from particular consideration in this diet.

None of our patients have developed a diarrhea on this diet nor have any complained of flatulence, in contrast with our previous experience with the "high caloric mixture." A patient has occasionally developed a mild degree of constipation and been relieved by the addition of a small amount of prune juice to one of the feedings each day. Laxatives or liquid petrolatum may be added to the feedings when indicated.

<sup>4</sup> Watson W L. Routine Management of the Gastrostomy Patient. New York State J Med 33: 1261 (Nov. 1) 1933.

PREOPERATIVE AND POSTOPERATIVE CARE

In the preoperative preparation for gastrostomy, patients who are dehydrated and malnourished from inability to swallow are given 10 per cent dextrose in physiologic solution of sodium chloride by the slow drip method for a few hours. No more than a small dose of morphine sulfate is necessary as preoperative medication.

In our clinic the Witzel type of gastrostomy with a size No. 22 soft catheter is invariably done under local anesthesia, and the tube is allowed to remain in place except for periodic removal for cleaning or replacement. This provides a tube large enough to admit a rather viscous feeding mixture when reasonable care has been taken in straining the ingredients during preparation. The feeding mixture here described, how-

route for the absorption of any appreciable amount of dextrose.<sup>5</sup>

After operation we have delayed the use of cereal and vegetables until the full diet is adopted in order to obviate the labor of preparing small amounts of these ingredients, as well as to eliminate the possibility of plugging the tube with improperly prepared material during the early period when replacement of the tube would be somewhat hazardous.

On the first day after operation the patient is already receiving about 1,166 calories, and the caloric value then advances rapidly each day to make up the temporary deficit. The quantity of the feedings is gradually increased if the patient experiences no distress, and the number of the feedings is decreased. By the eighth day the full diet mixture can be used. In some patients

TABLE 2—Analysis of Gastrostomy Diet

Ingredient	Quantity		Foodstuff			Minerals			Calories	Vitamins				
			Carbohy- drate Gm	Pro- tein Gm	Fat Gm	Calcium Gm	Phos- phorus Gm	Iron Gm		A	B	C	D	G
Milk	2s fl oz	840 Gm	42	2s	34	1.01	0.78	0.002	38s	+++ to ++++	++ to ++++	+ to ++	+ to +++	+++ to ++++
Corn syrup (dark)	10 fl oz	440 Gm	324	1	0				1,300	0 to +	0 to +	0 to +	0 to +	0 to +
Oatmeal	2 tbsp	1s Gm	10	2	1	0.01	0.0s	0.001	5s	++	++++	0 to +	0 to +	++
Eggs	5	2s0 Gm	0	34	27	0.17	0.45	0.008	380	++++	+++	0 to +	+++	+++ to ++++
Butter	2 oz	60 Gm	0	1	51	0.01	0.01	0.000	46s	++++	0 to +	0 to +	+++ to +	0 to +
Strained spinach	4 fl oz	120 Gm	4	2	1	0.08	0.08	0.003	20	+++ to ++++	++ to +++	++ to ++++	0 to +	+++
Scraped beef	2 tbsp	30 Gm	0	6	2	0.00	0.02	0.001	40	++	+++	++	++	+++ to ++++
Orange or grape fruit juice (or)	6 fl oz	180 Gm	18	0	0	0.0s	0.03	0.000	70	++ to +++	+++	++++	0 to +	++ to +++
Tomato juice	6 fl oz	180 Gm	7	2	1	0.01	0.03	0.001	4s	+++	+++	++++	0 to +	++ to +++
Halibut liver oil	10 drops									++++			++++	
Brewer's yeast	1 tbsp	10 Gm	4	5	0	0.00	0.16	0.013	3s		++++			++++
Ferrie ammo- nium citrate	½ tsp	2 Gm						0.28						
Table salt	1 tsp	5 Gm												
Totals			402	70	116	1.33	1.50	0.266	2,060	++++	++++	++++	++++	++++
Percentage of total calories			34%	11%	3s%									

ever, is of sufficiently smooth texture so that it can be used for feeding through a nasal catheter of small caliber.

We have prepared an outline for the simple preparation of feedings for the patient during the immediate postoperative days preceding the adoption of the full diet. The amounts used are very conservative, and many patients may be advanced to the full diet more rapidly than here outlined. Memory of the diet by the nursing staff is facilitated by the parallelism of days and the amounts of the feedings, i.e., 3 ounces on the third postoperative day, 5 ounces on the fifth postoperative day, and so on.

We have recommended nothing by tube for twenty-four hours to permit the sinus tract to be walled off by fibrin. Supplementary parenteral fluids are required during the first three days to maintain an adequate fluid intake. We prefer to give these as a slow intravenous drip of 10 per cent dextrose solution, but hypodermoclyses may be substituted or physiologic solution of sodium chloride, or tap water may be given by rectum. We have found, however, that many of the elderly patients operated on do not retain fluids administered by rectum. Experimental evidence suggests that no reliance should be placed on the rectal

requiring a greater food or fluid intake, the amount or the number of the feedings may be further increased, or additional water may be used with the feedings. On the other hand, by proportionately decreasing the number or the quantity of the tube feedings, the diet can easily be modified for the patient who is able to take small amounts of nourishment by mouth. When the caloric requirements are satisfied by tube, the patient may relish thin, clear, beef broths by mouth which, though very tasty, provide only 1 calory per gram of the dried beef cube.

We have been able to maintain an adequate intake without disturbing the patient during the night, and have not found it necessary to exceed a volume of 11 ounces for the individual feedings, i.e., 10 ounces of the feeding mixture followed by 1 ounce of water. This gives a total fluid intake of 77 ounces a day. Many patients find that there is a leakage about the tube with larger feedings or that there is abdominal distress even though the diet mixture is administered slowly.

The presence of the tumor mass in the esophagus tends to excite the esophagosaltary reflex by which a

5 Ebeling W W Aborption of Dextrose from the Colon Arch Surg 26 134 (Jan) 1933

face flow of saliva is produced to wash away any bolus of food held up in the esophagus. During the waking hours the saliva is swallowed, or expectorated when the obstruction is complete, but when the patient is falling asleep the accumulation of saliva often causes him to wake up choking when it has overflowed into the trachea. At such times marked relief can be obtained by the use of small subcutaneous doses of atropine sulfate, or a dual effect of diminution of the salivary secretion and of sedation can be obtained by the use of scopolamine hydrobromide.

Feeding is most satisfactorily accomplished by the use of a syringe of the Asepto type, the barrel of which can be used as a funnel. If the formula mixture should not flow in satisfactorily by gravity, the rubber bulb can be attached and light pressure applied.

The details of the diet are reviewed with the patient or some other member of his household, and he is provided with the following instruction sheet at discharge.

#### INSTRUCTIONS FOR GASTROSTOMY FEEDING

Prepare one cup of oatmeal, using 2 level tablespoonfuls of dry oatmeal cereal in a cup of water. Cook in a double boiler for at least one hour, preferably two, then strain through a fine strainer into a container having a mark to indicate a level at  $7\frac{1}{2}$  cups (use accurate measuring cup).

Add

- $1\frac{1}{4}$  cup of corn syrup (dark)
- $\frac{1}{4}$  cup or 4 tablespoonfuls of melted butter
- $\frac{1}{4}$  cup or 1 small can of strained baby vegetable puree, preferably spinach
- 1 heaping tablespoonful of brewers yeast powder and
- 1 level teaspoonful of table salt

Poach five eggs lightly and push through a fine strainer. Stir a small amount of milk into the strained egg until it is of a thin creamy consistency and then add to the feeding mixture.

Add enough pasteurized milk to bring the total volume up to the mark previously made at  $7\frac{1}{2}$  cups.

Place in refrigerator.

To use

Stir the mixture. Pour off  $1\frac{1}{4}$  cupfuls into a small container and warm lightly. Give the mixture through the tube using an Asepto syringe barrel or a funnel. Follow with 1 ounce of water to clean the tube.

Special Feeding

At 10 a. m. add slowly two thirds of a cup of strained orange, tomato or grapefruit juice to 2 tablespoonfuls of beef scrapings (best obtained from top round of beef). Stir constantly or beat to prevent the formation of lumps. Strain to remove any meat shreds which may plug the tube. Add 1 teaspoonful of the prescribed iron solution and 10 drops of halibut liver oil. Give the mixture through the tube, using the syringe barrel or a funnel. Follow with 1 ounce of water.

Feeding schedule

1 Give  $1\frac{1}{4}$  cupfuls of the feeding mixture at 8 a. m., 12 noon, and at 2, 4, 6 and 8 p. m.

2 Give the special feeding at 10 a. m.

Feedings should be given with the patient lying down, and the patient should remain on the back or right side for fifteen minutes following each feeding.

The patient may take additional water or clear broths by mouth when he is able to swallow them.

The tube should be kept in place at the same depth at all times unless it becomes plugged. If this occurs, loosen the fastenings and withdraw the tube. Clean the tube and force water through it with the syringe. Lubricate the tip with liquid petrolatum and reinsert the tube gently to its original depth and replace the fastenings. If any resistance is met with do not force the tube in but call your family physician or return to the hospital at once for assistance. The tube should not remain out for more than a short while. Return to your physician or to the hospital at least once a month for examination and for replacement of the tube.

695 Huntington Avenue

## GALLBLADDER CONTRACTILITY AFTER BLOOD TRANSFUSION

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AND

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CHICAGO

Philip Sandblom of Sweden in 1933 apparently completed the explanation of the method of gallbladder contraction. Evarts Graham, using what now is called the Graham-Cole method of cholecystography, proved conclusively that the gallbladder contracted. Ivy isolated his cholecystokinin from the mucosa of the duodenum of dogs and demonstrated that the contraction is initiated by a hormone.

Sandblom apparently proved that this hormone is transmitted through the circulating blood, by demonstrating that the gallbladder in fasting individuals contracted following the reception of blood from a donor who had previously eaten a fat meal. This work seemed to us of tremendous importance. Using his conclusions as a basis, we decided to continue the experiment along the following lines. We wished to see, first, whether the human equivalent of cholecystokinin was carried in the blood serum or in the cellular structure, secondly, if it was carried in the serum whether it might be possible to concentrate the serum so as to isolate the hormone, thirdly, whether the contraction in human beings was due to a hormone at all or simply to the high fat content of the blood serum, and, finally, whether it would be possible to get a concentrate of such strength that, by means of small doses, we would have a method of producing gallbladder contraction which would be of both clinical and experimental value.

The first step of the work consisted in obtaining high fat content blood serum and watching its effect on the emptying time of the gallbladder. In brief, the experiment was conducted as follows. Nine normal, healthy individuals with negative Wassermann and Kahn serum reactions, who presented themselves to the Serum Center of the Michael Reese Hospital, were chosen. These patients reported in the morning without breakfast and were given 8 ounces (236 cc) of a meal consisting of 32 per cent cream, 2 egg yolks, 1 teaspoonful of sugar and 1 teaspoonful of cocoa. Blood was drawn from an hour to an hour and a half after the ingestion of this meal. The blood was allowed to clot, the bottles were then placed in centrifuge, and the serum, without separation of the fat, was withdrawn and pooled. The resultant serum in each case was thick and milky white and when tested for fat showed a four-plus, three-plus or two-plus reaction. Tricresol was added and the serum then kept under sterile conditions in 100 cc bottles in the icebox.

N. R. was selected for the test, Dec 5, 1934. A cholecystograph, which had been made a week previously, showed a good concentration of the dye and a normal emptying of the gallbladder, although one large calculus was found to be present. (Choosing of a patient with a gallstone was premeditated because it was intended, should the gallbladder empty, that the test be repeated later at the time of operation and the gallbladder contraction actually visualized while the abdomen was open.) The patient was given gall

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From the Group for the Study of Diseases of the Biliary Tracts of Michael Reese Hospital.



bladder dye on the evening of December 4 and in the morning the film showed a large distended gallbladder, good concentration of the dye, and a single calculus. One hundred cubic centimeters of high lipid serum was given intravenously, and films taken ten minutes, one-half hour, one hour and two hours later showed that the gallbladder still retained approximately its original shape and opacity. After two hours the usual fat meal was given, and films taken an hour later showed that the gallbladder had evacuated. Thinking that perhaps the failure to obtain gallbladder contraction might be explained on the basis of an insufficient amount of serum, we repeated the test.

In the second case the gallbladder had shown a normal concentration and emptying on previous x-ray studies. M G was given the usual amount of dye on the night of December 17, and a picture taken fourteen hours later, with the patient fasting, showed a good concentration of dye and an apparently normal, well distended gallbladder. Two hundred cubic centimeters of high lipid serum was given intravenously and the gallbladder failed to contract, as shown by x-ray studies, ten minutes, one-half hour, one hour and two hours afterward. Two and one-half hours later the patient was given egg yolk by mouth, and it was found that the gallbladder then emptied normally.

These first two experiments clearly indicated that 200 cc of high lipid serum, obtained from individuals who had eaten a fat meal, failed to produce an emptying of the gallbladder, although in both instances it was shown that the gallbladder did function normally by the fact that after the ingestion of the usual fat meal the gallbladder emptied in the normal manner.

At this stage it became obvious to us that we had perhaps been in error in accepting the work of Sandblom and that it would be necessary to repeat his original experiments. The following two experiments are typical of the seven which we conducted to prove or disprove his contentions.

Jan 10, 1935, W G, who had on previous x-ray investigation been shown to have a normally filling and emptying gallbladder, was chosen because it had been contemplated to give this patient a blood transfusion before performing an exploratory laparotomy for a possible carcinoma of the sigmoid. The night of January 9 the patient was given the usual amount of gallbladder dye. A roentgenogram taken after fourteen hours, with the patient fasting again, showed a well filled gallbladder with normally concentrated dye. The patient's brother, who was to act as donor, was given a breakfast consisting of 6 ounces (180 cc) of cream and the yolks of two eggs. An hour and a half later 500 cc of blood was transfused from this donor into the veins of the patient by the multiple syringe method. Roentgenograms taken fifteen minutes, one-half hour, one hour and two hours later failed to show any contraction of the gallbladder. The patient was then given the fat meal, and roentgenograms taken at intervals thereafter showed the normal emptying responses an hour later.

S O presented a questionable diagnosis. Previous roentgenograms had shown that the gallbladder filled, concentrated and emptied normally. In the fourth experiment roentgenograms taken on the morning of May 20 while the patient fasted fourteen hours after the ingestion of gallbladder dye, showed normal filling and concentration of the gallbladder. At 8:40 a.m. the donor was given a fat meal of 6 ounces of cream and the yolks of two eggs. At 9:35 this meal was

repeated. At 10:10, 500 cc of blood was withdrawn by multiple syringe from the donor and injected into the veins of the patient. Roentgenograms fifteen thirty and sixty minutes later showed no contraction of the gallbladder. At 11:30 the patient was given a fat meal by mouth and at 12:30 the gallbladder was empty.

Five more experiments were identical except that the blood transfusions were done at slightly different intervals, varying from thirty-five minutes to an hour and ten minutes after the donor had received a fat meal. In each instance it had been established previously that the various subjects in question had normal functioning gallbladders. In none of the seven patients did the reception of 500 cc of fresh blood, taken from donors who had had a fat meal from thirty-five minutes to one and one-quarter hours previously, cause any clearly demonstrable contraction of the gallbladder, and in every instance it was shown that the normal gallbladder responses were present, by the fact that after the subject himself or herself had eaten a fat meal the gallbladder emptied.

#### CONCLUSION

From these experiments, we must conclude that

1. High lipid content serum in amounts of 100 and 200 cc fails to cause gallbladder contraction.
2. The transfusion of 500 cc of blood from a patient who has first been given the usual so-called gallbladder fat meal fails to produce demonstrable gallbladder contraction in the recipient.

104 South Michigan Avenue

### DELINQUENT PATIENTS IN VENEREAL DISEASE CLINICS

#### RESULTS OF A STUDY IN BALTIMORE CITY HEALTH DEPARTMENT

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AND

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In the summer of 1935 it became possible to make a survey of the activities of the venereal disease clinic of the Baltimore City Health Department because of clerical assistance furnished by the Baltimore Emergency Relief Commission. In that study an attempt was made to evaluate the effectiveness of the city clinics from the standpoint of curtailing the spread of syphilis. A detailed analysis was made of all new patients admitted during the period beginning July 1 and ending Dec 31, 1933.

In order to draw any conclusions from this study it will be necessary to outline briefly certain facts concerning the venereal disease clinics in Baltimore in 1933. During that year 4,558 new cases were admitted, of which number 2,595 were of syphilis. A total of 102,352 visits were made to the clinics. In 1931, two years previously, a total of 2,109 new cases had been admitted. Of these, 1,383 were new cases of syphilis, and 57,043 visits to the clinics were recorded. Thus there had been in 1933 an increase of 118 per cent in total admissions and 79 per cent in the total number of visits to the clinics as compared with the year 1931. Prior to 1933 the venereal diseases had been under the control of the Bureau of Communicable Diseases. At that time a bureau of venereal diseases was established.

Prior to the organization of the bureau there had been little attempt to follow up delinquent patients or to determine sources and contacts of new cases and bring them under treatment. No special effort had been made to keep syphilitic mothers under continuous treatment during pregnancy, nor had arrangements been made for Wassermann tests in the case of their children. It was nevertheless felt that a study of the clinic histories of patients admitted during the latter half of 1933 would form a base line for future comparisons, as the patients admitted during that period had had ample time to complete treatment by July 1935.

#### SOME BASIC FACTS IN THE CONTROL OF SYPHILIS

It is well established that in primary and secondary syphilis

1 The earlier a diagnosis is established and prolonged treatment instituted, the better are the chances of curing the patient

#### EARLY LATENT CASES

In Baltimore the term "early latent" applies to those cases which do not come under treatment until after the completion of the secondary period but do so before three years after the original infection. It can be taken for granted that in these a natural immunity has developed to the maximum degree. Consequently, the danger of injuring these patients by an insufficient number of treatments is not so great. However, treatment should be given to this group for the maximum period of time and with as much regularity as can be reasonably obtained.

#### LATE LATENT CASES

In the late latent group are found those cases of syphilis in which three years has elapsed since the development of the primary chancre or secondary manifestations and in which the Wassermann reaction is still positive, owing to insufficient treatment. From the standpoint of infectivity these cases are of much less direct interest to the public health officer. They con

TABLE 1—Percentage of Patients Receiving a Specified Number of Treatments, Based on Records of 827 Cases Admitted Between July 1 and Dec. 31 1933

Group	Number of Treatments									Summary	
	Under 8	9 to 15	16 to 20	24 to 31	32 to 40	40 to 47	48 to 55	56 to 63	64 Plus	Under 40	Over 40
White male	8.19	9.84	13.11	11.48	8.28	9.83	11.48	5.28	29.51	41.90	58.10
White female	1.09	9.43	11.32	3.78	7.54	13.21	11.32	5.66	22.65	47.16	52.84
Colored male	2.4*	11.29	13.81	4.60	12.97	7.12	8.36	9.63	8.79	66.10	33.90
Colored female	24.05	13.03	12.87	11.81	8.23	9.28	6.75	4.64	9.29	70.04	29.96

TABLE 2—Clinic Status of Primary and Secondary Cases Admitted June 1 to Dec. 31 1933 Not Receiving Full Treatment per Thousand Such Patients

Clinic Status	Number of Treatments																											
	White Males and Females									Colored Males									Colored Females									
	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Under 8	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	
	80	141	189	144	64	191	127	64	1000	300	139	137	30	165	87	69	68	1000	204	100	150	140	109	80	58	91	1000	
Total Still under treatment					48	48	80	95	16	237			9	9	30	17	43	59	172		8	20	59	59	60	60	8	311
Transferred to physicians				32						32	9	9							18	8								8
Transferred to institutions																			9	8			8					16
Left city				48		32			80	26		9	9	9	9			53	17	8	17	8	17	8			67	
Unable to locate	32	32	16	16		16			112	145	52	52	17	43	35	9		313	108	8	17	42	17	8	8	8	74	
Uncooperative		16	32						48	52	43	76		43	9			223	25	17	8	8	8				99	
No reason given	48	93	109	32	16	63	32	48	441	68	26		30	17	17	9		172	83	67	88	20	8			8	281	

2 If no treatment is taken by the patient a certain amount of immunity is developed, up to the completion of the secondary stage, and incomplete treatment, if begun prior to the end of the secondary period, prevents or destroys the development of natural immunity by the host and thereby makes the patient more susceptible to infectious relapses and to the development of serious late lesions of the cardiovascular and cerebrospinal systems.<sup>1</sup>

From the last statement it should not be inferred that anything is gained by putting off treatment until the secondary stage is past. On the contrary, every effort should be made to begin treatment, if possible, in the seronegative stage when the diagnosis is based on a darkfield examination. It is important that once treatment is begun in an early case it be continued to completion. The practice current in the past by which it was thought that a few treatments sufficient to clear up the infectious lesions would protect the community is reprehensible in the face of modern knowledge.

stitute a great social and economic problem, however. From 12 to 15 per cent of the inmates of asylums are recruited from this group. Furthermore, from 10 to 12 per cent of these patients are incapacitated by the cardiovascular complications of the later years. These cases present special therapeutic problems for the practitioner of medicine. Intelligent treatment would make it possible to arrest the development of untoward symptoms and enable these people to earn their living. In this manner it should be possible to save millions of dollars to the taxpayers of the future. Further than this statement of the problem, no attempt will be made to consider the late latent group in this article.

#### THE AIMS OF TREATMENT

Following the time when the Wassermann reaction becomes permanently negative, the goal established for ideal treatment should be not less than four alternating courses consisting of eight weekly injections of an arsenical and eight weekly doses of a heavy metal. Without reaching this ideal goal, and viewed from the

1 Moore J. E. Modern Treatment of Syphilis. Springfield, Ill. Charles C. Thomas, 1933. pp. 26, 28.

standpoint of safety from future infectiousness, the minimal optimal treatment should not be less than twenty doses of an arsenical and twenty doses of a heavy metal, taken at weekly intervals in interchanging courses of eight doses each. It follows, then, that the number of patients who receive the minimal optimal number of treatments constitute the criterion by which the effectiveness of a treatment clinic service can be gauged.

There follows an analysis of the number of treatments received by patients admitted during the period July-December 1933. It is presented in order to show to what extent the venereal disease clinics of the Baltimore City Health Department were then discharging their responsibility.

#### RESULTS OF THE STUDY

From table 1 it will be seen that the minimal optimal number of treatments (forty) were received by more than one half of the white patients as against one third of the colored group. The contrast between the percentages of patients receiving various numbers of treatments, white and colored, lies primarily in the percentages of patients receiving less than eight treatments.

Colored males were more commonly lost because of change of location and for lack of cooperation than white males and females. No reason is known for the loss of 40 per cent of all cases. A study of the histories frequently showed that lack of cooperation, the age of the patient and the stage of the disease to a certain extent explained many of these delinquents. It is interesting to note in table 2 that there was no apparent reason for the loss of 44 per cent of the primary and secondary white cases.

Table 4 shows that among the patients with primary and secondary lesions who continued treatment at the clinic until the minimal optimum of forty treatments was received, there were twice as many white males and females as colored males and females. White patients with latent syphilis did not continue treatment for such a long time as white patients with primary and secondary lesions. On the other hand, both colored males and females with latent syphilis continued their treatments longer than patients of the same race with primary and secondary lesions. In the case of colored males with latent syphilis, nearly as high a percentage received forty or more treatments as did white patients.

TABLE 3—*Clinic Status of Latent Cases Admitted June 1 to Dec. 31, 1933, Not Receiving Full Treatment, per Thousand Such Patients*

Clinic Status	Number of Treatments																											
	White Males and Females									Colored Males									Colored Females									
	Under 9	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Under 9	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	Under 9	9 to 15	16 to 23	24 to 31	32 to 39	40 to 47	48 to 55	56 to 63	Total	
Total	184	164	142	20	102	142	164	82	1 000	212	96	171	86	106	64	153	107	1 000	292	140	140	114	83	111	84	26	1 000	
Still under treatment																												
Transferred to physicians				20	61	20	103	82	266						64	11	32	64	171	3	7	20	36	42	78	52	26	264
Transferred to institutions																							3				3	
Left city	41					41			82		11	11	11					32		16			3	3			22	
Unable to locate	20	41							102		64	32	32	11	21			160		117	26	13	2	26	3	3		201
Uncooperative	41	20				20			81		64	21	64	43				192		29	26	16	20					91
No reason given	41	103	122		41	20	61		358		81	32	43	21	21	52	126	43	423	107	74	63	29	29	23	26	10	266

and those receiving sixty-four or more. For white patients, roughly one fourth received the full course of treatments, in colored patients, about one fourth dropped out before receiving eight treatments.

There is very little difference in the number of treatments received by males and females of the same race. However, in the group that received less than eight treatments are found twice as many white women and three times as many colored males and colored females as white men.

Tables 2 and 3 present an analysis of the number of treatments received by patients who did not complete their four courses of treatment, classified according to their status as to clinic attendance in July 1935. A comparison of these two tables shows that the proportion of white patients with primary and secondary lesions who had not completed full treatment and were still attending the clinic was the same as the proportion of white patients with latent syphilis. This situation holds also for colored patients with primary and secondary lesions as compared with colored patients with latent syphilis. For the first group (white males and females) 28 per cent remained under treatment and for the second group (colored males) 17 per cent. In the case of colored females however 34 per cent of patients with primary and secondary lesions remained under treatment as compared with 26 per cent of patients with latent lesions.

with latent syphilis. The figures are 40 per cent for the colored males and 46 per cent for the white males and females.

#### COMMENT ON TREATMENT

This detailed study of clinic attendance tends to point out the weak spots in the clinic and field setup.

TABLE 4—*Percentage of Primary, Secondary and Early Latent Cases in Which Forty or More Treatments Were Given Classified by Color and Sex*

Group	White Male and Female	Colored	
		Male	Female
Primary and secondary Latent	53.4 46.6	2.6 40.0	25 71.1

and shows where emphasis should be placed in order to improve conditions.

A special effort must be made to have regular treatments given in the primary and secondary infectious cases until lesions have cleared up and they become temporarily noninfectious. After this has been accomplished every effort must be made to enforce weekly treatments to the completion of four courses, if possible, and in all cases to the point at which at least the minimal optimum of forty treatments have been received. Colored males and females in the primary and secondary groups should be given special attention.

In dealing with early latent cases at least twenty treatments of an arsenical and twenty of a heavy metal must be insisted on as minimal treatment. In addition, every effort should be made to have the patient take even more complete treatment. Extreme regularity of treatment, while desirable, is not quite as important as in the case of patients with infectious lesions.

#### IMPROVEMENTS IN THE FOLLOW-UP SYSTEM

At the present time (1935) five full time social investigators are connected with the Bureau of Venereal Diseases. They consist of three white women, one colored woman and one white man. These workers, besides visiting delinquent contacts, also spend time in the clinics interviewing new patients with the hope of finding sources and contacts of cases.

During seven months beginning February 1935 there were 6,187 delinquent patients reported from the five clinics, an average of 884 per month or about 221 per week. In addition, delinquents not receiving treatment reported by local hospitals and private physicians were visited by the social workers.

At present the histories of all primary and secondary cases absent from the clinic one week and all histories of early latent cases absent on two occasions are sent to the bureau director's office by the clinic clerk at the end of each week. These are carefully scrutinized by the director and any points of special interest are noted. They are then distributed among the workers on a district basis. Patients with primary and secondary lesions and pregnant women are given first consideration. These are visited personally by the investigators. In other cases, when the patient is not found at home, a card is sometimes left advising him or her to return to the clinic. In case the patient has changed his address, the name is reported to the chief inspector in the police department and is in turn given by him to the district police officer, who attempts to locate the patient. All new addresses are reported back to the Bureau of Venereal Diseases and are given out to the social investigators the following week.

Patients who repeatedly do not respond to the visits are finally summonsed to a police magistrate's court, where they are given a warning, which often brings results. In early clinical cases, summonses are issued after the patient has been absent from the clinic on two occasions and in early latent cases after they have been visited three or four times without results. In addition to the visits made by the social workers, form letters or personal letters are sent on occasion by the director of the bureau. These attempt to explain to the patients the dangers of discontinuing treatment and always include a special informative pamphlet. It has been found that letters are about 40 per cent effective. The results are comparable to visits in which the patients are not personally interviewed. All patients who prove to be hopelessly uncooperative are discharged by the director of the bureau. A final letter of explanation and advice is sent at this time.

In the case of contacts, who are also visited by the social investigators, the problem is if anything more difficult. Here persuasion alone must be relied on, as it is impossible to summons a person to a police court in whom the diagnosis of syphilis has not been made. Explanatory letters and printed circulars are often useful.

By following out the methods just described, we hope that in the future the minimal optimal number of treatments will be received by an increased number of

patients and also that more patients will complete their four courses of treatment. A comparative study made after the lapse of from one to two years should show definite improvement.

#### SUMMARY

A study of the delinquency of venereal disease clinic patients in continuing their treatment has been made in order to furnish a base line for future comparisons. While it is not possible to estimate exactly the extent to which a venereal disease clinic service of a city health department discharges its responsibility, this study presents preliminary evidence on that problem.

City of Baltimore Health Department

## THE TREATMENT OF DYSMENORRHEA WITH INSULIN

#### PRELIMINARY REPORT

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Primary or essential dysmenorrhea has been correctly described as the *bête noire* of gynecology. All the skill, knowledge and ingenuity of the general practitioner and gynecologist are taxed to their capacity in the management of this distressing symptom complex.

A thorough gynecologic examination frequently reveals no pelvic abnormality, and as Novak and Reynolds<sup>1</sup> aptly remark, "the intelligent treatment of this disorder [besides a complete pelvic examination] can never be restricted to the pelvis alone and must include a thorough study which may carry the physician far afield into the domains of internal medicine, endocrinology, psychiatry and other branches of clinical investigation."

The remedies recommended and the procedures adopted are legion. Surgery, such as operations on the cervix (Dudley, Blair Bell, Pozzi), dilation without curettage and dilation with curettage are frequently resorted to. The benefits obtained sometimes give temporary relief over the next few succeeding periods and only occasionally give permanent relief. Alcohol injections of the sacral nerves have been used.<sup>2</sup> There are many references in the literature to the use of laparotomy for resection of presacral sympathetic nerves and for oophorectomy in an effort to give the patient much needed relief,<sup>3</sup> and more recently x-ray and radium exposures have been used to induce sterility and an artificial menopause.<sup>4</sup>

Without being hypercritical of the success obtained with such extreme measures, I would point out that it is quite apparent that not every patient with dysmenorrhea will submit to surgery or to the induction of sterility. On the other hand, one must realize the great suffering of these unfortunate women and the extreme

From the Medical Service of Dr. B. P. Stielman, Harlem Hospital, Dr. Thomas A. Martin, Director, and from the Medical Service of Sydenham Hospital.

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measures that they will frequently permit to give them more or less permanent relief. In addition, there is an economic factor which must not be overlooked. Besides the loss in earning power, the embarrassment that they suffer as a result of their periodic incapacity is often the origin of grave psychoneuroses.

The patients with primary dysmenorrhea, excluding those with organic conditions, may be grouped into four main classes.

A In the first group are those with a hypoplasia (subpubescence of the uterus, with a predominance of the fibrous elements over the muscular). Therapy should be aimed at the development of the uterus, and in these the use of a sex stimulating hormone is indicated.<sup>6</sup>

B In the second group are those in whom, according to Novak and Hartnik,<sup>6</sup> the dysmenorrhea can be explained on the basis of an anxiety psychoneurosis.

C Another group of patients is hypersensitive to pain stimuli, and what the normal individual would consider only slight or moderate pain produces severe reactions in this group.

D There is a distinct group in which endocrine disorder is the cause of the trouble. Novak and Reynolds<sup>7</sup> believe that the cause of dysmenorrhea is an exaggerated contraction of the uterus and not a mechanical obstruction, as was formerly believed. They have shown that follicular hormone stimulates uterine contraction and that progesterin inhibits it. They therefore recommend the luteinizing principle from the urine of pregnant women to stimulate progesterin formation and so indirectly inhibit the rhythmic contraction of uterine muscle.

Novak<sup>8</sup> does not favor the use of estrogenic substance empirically or on the basis of Kennedy's theory<sup>9</sup> that the symptom is due to degenerative changes in Frankenhauser's ganglion due to diminution of estrogenic substance. On the contrary, Novak<sup>10</sup> says that the estrogenic substance is the natural stimulant of uterine contractility, and that progesterin, or the anterior pituitary-like principle, is the inhibitor of uterine contractility. He recommends follutein or antuitrin S, from 100 to 200 units each day for several days before the flow. Novak, however, is not enthusiastic about its results and says that "because of the ever present psychic factor it is difficult to appraise the effect."

In the course of my use of insulin for its metabolic stimulating effect in malnutrition, patient 1, who had always been obliged to go to bed for the first two days of her menstrual period, reported entire absence of pain while under treatment with insulin. During and after the war, in Germany and in Austria, the population suffered from lack of food, especially vitamin and mineral bearing elements, with resultant malnutrition and concomitant functional endocrinopathies. The women in these countries suffered from severe dysmenorrhea as well as from amenorrhea. Mindful of these facts it appeared to me that the favorable effect of insulin in this patient was due to improvement in nutrition and so indirectly menstrual relief on a constitutional basis. However, I decided to see its immediate effect on a patient during an attack of dysmenorrhea.

Patient 2 consulted me May 16, 1935, for a severe attack of menstrual pain of twelve hours' duration. She had come in from a midwestern city that day. In order to avoid the possible improvement that might result from suggestion, it was explained to the patient that the remedy being used might not give relief and was not certain in its effect. Fifteen units of insulin commercial brand C, was given at 2 p. m., followed by liberal quantities of orange juice. In thirty minutes there was complete relief from pain. For the next six hours the patient felt hungry and slightly nervous. She was able to get about. She had always suffered with severe pain for two days of her period, requiring bed rest.

In order to avoid the criticism that the stimulation of sex development and function with the use of insulin was due to the improvement of diabetes, G. A. and R. L. Williams<sup>11</sup> report a case of striking acceleration of body growth and sexual development in a non-diabetic girl, aged 8½ years. While using insulin they noticed an increase in the size of her breasts and periodic abdominal pain simulating menstrual cramps. These effects disappeared when insulin was discontinued and reappeared months later when insulin was resumed.

Without going far afield into the endocrinology of the pancreas and the possible effect of insulin on the other glands, the fact remains that other observers have noted endocrine effects other than stimulation of carbohydrate metabolism by insulin.

In this series of cases, patients were arranged in two groups. Group A, treatment from five to seven days before menstruation, and group B, treatment during the attack. The effects were noted with insulin prepared by different manufacturers, and a definite variation was observed.

CASE 1—Mrs. M. S. K., aged 26, never pregnant, a former entertainer, consulted me April 15, 1935 for nausea, inability to gain weight, and a chronic cough. She had had lobar pneumonia type V in October 1933, with uneventful recovery except for bouts of coughing since and before the pneumonia. There was no family history of dysmenorrhea. The menses began at 13, occurred every twenty-eight days and she flowed five days, with severe pain requiring bed rest the first two days. She had had several attacks of sinusitis, with an operation for the removal of polyps.

The patient was poorly nourished, was 147 cm. tall and weighed 34.5 Kg. The heart was normal. The lungs showed moist rales at both bases. The blood pressure was 90 systolic, 70 diastolic. Both kidneys were palpable. There was a small uterus in normal position. The adnexa were normal. Examination of the central nervous system was negative.

Laboratory examination showed hemoglobin, 78 per cent (Sahli); red blood cells, 4,100,000, white blood cells 7,320, differential, normal. The urine was normal. The blood Wassermann reaction was negative. The Ewald test meal (one hour) showed free acid 40 cc., total acid, 68 cc. Blood sugar (fasting) was 0.68 per cent. The basal metabolic rate was minus 5 per cent. The sputum was repeatedly negative for tuberculosis. A gastro-intestinal series of roentgenograms showed visceropeliosis and otherwise were negative. Roentgenograms of the chest showed increased markings at both bases, on the left more than on the right. Roentgenograms of the sinus showed right clouding of the ethmoids and antrums.

Treatment consisted of supporting treatment and insulin, 10 units once daily before the noon meal. After two and one-half weeks of treatment the weight improved to 37.3 kg.

At the menses April 25 there was no pain and only slight discomfort, the patient was up and about.

CASE 2—Mrs. B. C. aged 24, never pregnant, had had pneumonia three times, measles, chickenpox, pertussis and an appendectomy at 12. The menses began at 13, and were for

<sup>1</sup> Spastic Dysmenorrhea. Queries and Minor Notes. J. A. M. A. 100: 1798 (June 3) 1933.

<sup>6</sup> Novak, J. and Hartnik, M. Med. Klin. 25: 231 (Feb. 15) 1929. Ztschr. f. Geburtsh. u. Gynäk. 96: 239 (1929).

<sup>7</sup> Novak, Emil. Am. J. Obst. & Gynec. 21: 19 (Sept.) 1932. Novak and Reynolds.

<sup>8</sup> Novak, Emil. The Therapeutic Use of Estrogenic Substance. J. A. M. A. 104: 1815 (May 13) 1935.

<sup>9</sup> Kennedy, W. P. Brit. M. J. 1: 46 (April 25) 1932.

<sup>10</sup> Novak, Emil. Anterior Pituitary and Anterior Pituitary-like Substances. J. A. M. A. 104: 998 (March 25) 1935.

<sup>11</sup> Williams, C. A. and Williams, R. I. In: Orogenic Stimulation of Sexual Development. J. A. M. A. 104: 1208 (April 6) 1935.

five to six days' duration, every twenty-nine to thirty days, with severe pain the first day. The basal metabolic rate, Aug 24, 1934, was minus 11 per cent, blood sugar, 0.96 mg.

The patient was poorly nourished and had a faint systolic murmur at the apex, not transmitted. She weighed 47.3 Kg. The blood pressure was 120 systolic, 80 diastolic.

May 16, 1935, she had come into New York from a mid-western city and had severe abdominal pain with menstruation. Fifteen units of insulin, commercial brand C, followed by a liberal quantity of orange juice was given. There was relief in thirty minutes with no further pain during this period. The patient returned to her home in the Middle West.

CASE 3—L. G., aged 19, single, a clerk, had an uneventful family history. The menses began at 14, were irregular, every twenty-eight to thirty-five days, with moderate flow of five days' duration, there was severe pain the first two days. She weighed 40 Kg and was 159 cm tall.

Physical examination was negative. The basal metabolic rate was minus 12 per cent. There was no rectal or pelvic abnormality. There was no family history of dysmenorrhea.

Treatment was begun June 13, 1935, with 12 units of insulin, commercial brand B, daily, and on June 27 was changed to 10 units twice a day (self administered). Her weight, June 22, was 41 Kg.

She came to the office for insulin while menstruating, there was no pain or discomfort. July 25 was the next period, with self administration of insulin, there was no pain and she was comfortable. Since discontinuance of the insulin she has had some pain, not always as severe as before treatment was begun.

CASE 4—L. P., aged 25, a secretary, had the onset of the menses at 14. The periods were somewhat irregular, every thirty to thirty-five days of five days' duration, with excruciating pain the first two days.

Physical examination was essentially negative. Her weight was 55.4 Kg and her height 162 cm. The blood pressure was 105 systolic, 85 diastolic. Blood sugar was 0.92 mg. The blood count was normal.

She was treated July 1, 1935, five days before her period, with from 7 to 10 units of insulin, brand B. The period of July 6 was attended with very slight discomfort, and she worked. In August while on her vacation she had no treatment and there was severe pain. September 6 she took daily injections of 7 units of insulin B for four days and was comfortable. October 6, she had one injection of 7 units before the period (five days early). There was pain with the period, 5, 7 and 7 units of insulin was given during the first day and on the second, with relief after forty-five minutes. November 9, the period began. She had had insulin, 7 units daily for five days, before the period. There was slight pain, urticarial wheals appeared with the injections. December 16, 10 units was given with the onset of pain, with total relief in one-half hour.

CASE 5—G. T., aged 33, single, formerly an entertainer, an American, with no family history of menstrual pain, had been operated on in 1931 for salpingectomy and partial oophorectomy for bilateral salpingo-oophoritis, and in 1934 for intraligamentous cyst, i. e., "chocolate cyst" of the ovary. Menstruation was very painful before and after operation, it occurred every twenty-eight days, before operation the flow was from ten to eighteen days. The basal metabolic rate was plus 12 per cent. The blood sugar was 102 mg.

Ten units of insulin twice a day was given for appetite stimulation and weight increase, from July to September 1935. During the course of treatment the menstrual periods were painless.

CASE 6—L. R., aged 12½ years, a school girl, whose menses began at 10½ years, had a period every twenty-eight days of five days' duration, the first two days of which were extremely painful and the patient would be bedridden.

She had had measles and pertussis, a tonsillectomy at 6 and an appendectomy at 10. The child's mother was a cardiac patient but did not have menstrual pain.

Physical examination revealed rheumatic heart disease with a double mitral valve. Rectal examination showed no pathologic pelvic condition.

July 31, 1935 insulin brand C was begun and 6 units was given daily for five days preceding the period August 5 at which time the child was at play and reported absence of pain.

At the September 4 period insulin brand A, 6 units daily was given, there was some pain. For the next period, October 6 administration of insulin C, 6 units, was made by the mother daily for one week before the period. There was entire relief of pain and the patient was comfortable. In November the patient was out of town, a letter received from her told of administration by the mother daily for four days before the period followed by very slight discomfort "hardly enough to talk about." In December she was still out of town, a letter, received on the 9th reported daily administration by the mother for six days preceding the period and total relief from pain.

CASE 7—M. J., aged 19, a typist, had periods every twenty-eight days for five days. Weighed 52.5 Kg, and was 163 cm tall. Blood pressure was 95 systolic, 70 diastolic.

Laboratory examination showed hemoglobin, 70 per cent, red blood cells, 3,990,000, white blood cells, 7,950, with differential normal, blood urea, 14.1 mg per hundred cubic centimeters, creatinine, 1.3 mg, sugar 84 mg, sugar tolerance test, normal (two hours).

July 20, 1935, insulin, brand C, was given for four days resulting in only slight pain with the period. August 18 insulin brand A, 7 units daily for eight days delayed the period three days and resulted in severe headache and no relief of pain. At the November 14 period there was no pain. Insulin brand C, 10 units, had been given for three days before the period.

CASE 8—D. H., aged 23, a stenographer, weighing 51.7 Kg and 166 cm tall, menstruated every twenty-three days, for five days, with excessive flow. Rectal examination showed no definite pelvic disorder.

Insulin, brand A, 8 units daily for one week, delayed the period three days, there was headache and no relief. During the period beginning Sept 30, 1935, 10 units of insulin was given with temporary relief after one hour. The pain recurred in six hours. Relief was again obtained after one hour.

CASE 9—A. E., single, aged 38, started to menstruate at 14, every twenty-eight days for five days, with severe pain the first two days. She would be bedridden the first day. She weighed 55.4 Kg and was 152 cm tall.

History revealed pneumonia, measles and chickenpox in childhood, and influenza. The patient suffered with brachial and sciatic neuralgia with a change in the weather.

Insulin brand B, 10 units, given during an attack, Sept 6, 1935, relieved the pain in forty-five minutes, and the patient was comfortable for the rest of the day.

CASE 10—Mrs. I. R., aged 24, a secretary, weighed 49 Kg and was 150 cm tall. The menses began at 11 and occurred every twenty-eight days, for six days. Profuse flow with clots occurred on the third and fourth days. Examination was negative.

Oct 9, 1935, insulin, brand B, 10 units, was given for the pain in the abdomen and down the thighs on the first day, with relief in forty minutes.

CASE 11—H. R., aged 27, unmarried, a registered nurse weighing 60 Kg with a height of 157 cm, started to menstruate at 12, every twenty-eight days, for five days. Rectal examination revealed no abnormality.

Oct 7, 1935, for severe, excruciating pain at the onset insulin brand B, 10 units, was given. In thirty-five minutes there was partial relief. In one hour it was complete with a feeling of relaxation. It induced free flow. November 6 menstruation began with severe pain in the abdomen and thighs. Ten units of insulin, brand B, self administered, gave relief in thirty-five minutes.

CASE 12—I. W., aged 26, single, a registered nurse, was 165 cm tall and weighed 58.2 Kg. The menses began at 14 every twenty-nine to thirty days, of four days' duration, with moderate flow. There was severe pain requiring bed rest on the first day.

Physical examination including the rectum, was negative. Blood sugar was 104 mg, and blood urea nitrogen 14.3 mg. Roentgenograms of the chest and the basal metabolic rate were normal.

Insulin, brand C, 8 units, was given for five days before the period. The patient began menstruating Dec 1, 1935 with no pain. For the second period, December 31, insulin, brand C,



8 units, was given daily for four days preceding menstruation, resulting in absolute freedom from pain during the entire period

## COMMENT

Of the twelve cases presented here, insulin was given for from three to seven days before the menstrual period in eight. In seven, with the use of insulin, commercial brands B and C, definite modification and avoidance of pain was effected. With the use of insulin, brand A (second period in cases 7 and 8) there was a delay of three days in the menstrual period in each case, severe headache at the vertex and no relief from pain.

In the four other cases in which insulin, brand B or C, was given during the attack of pain, without previous premenstrual medication complete relief was effected, in each one from thirty minutes to one hour. There was no severe insulin shock in any case, although patient 4 reported sweating when more than 7 units was used. However, she did not follow instructions with regard to the ingestion of orange juice and other carbohydrates.

As was noted by other workers with insulin,<sup>12</sup> not every brand of commercial insulin contains the activating substance necessary to be effective in this condition.

Insulin has been used in gynecology for various hemorrhagic conditions with interesting results.<sup>13</sup> Abel,<sup>14</sup> in experiments on animals, reported a long estrus pause with a decrease in the number of follicles and an increase in the corpora lutea. Poulain-Landrieu<sup>15</sup> mentions the beneficial uses of insulin in the various uterine hemorrhagic conditions and also mentions its use as of value in some cases of dysmenorrhea. Although he does not cite any cases or state the number of patients to whom the treatment was given, he says that it should be tried in every case of functional dysmenorrhea.

In the group of cases here reported most of the patients were underweight and had a lowered basal metabolic rate. None of them showed stigmas of hysteria or psychoneuroses or evidence of other endocrinopathies. The blood sugar levels, when taken, were within normal limits. No severe insulin shock was encountered. With the exception of case 5, there was no pathologic condition of the pelvis noted, and even in this case, with extensive intra-abdominal adhesions and previous salpingo-ovarian disorder, there was entire absence of menstrual pain during the time of insulin administration.

In ten of the twelve cases here reported definite relief was obtained with insulin, either premenstrual, or during the pain. Patient 4 expressed her preference for the premenstrual method of administration because it removed the anticipation of a painful period. On account of her menstrual irregularity and the pressure of institutional work she omitted the daily administration before her last period (December 1935) but gave herself 10 units with the onset of pain. She was completely relieved in twenty minutes.

The use of insulin for dysmenorrhea offers an effective, simple and inexpensive means of relief. If properly used, it is entirely safe. It is too early to say definitely whether it is capable of altering the patient's condition so that after its use for some time there will be permanent absence of pain. The reports of its

success in this group of cases are gratifying. Further metabolic and endocrine studies are in process in some of these patients and will be in others as they present themselves.

## SUMMARY

In a group of twelve patients, all nulliparas, suffering from primary or essential dysmenorrhea ten received practically total relief from menstrual pain by using insulin from three to seven days before or during the period. One patient obtained relief in one period with one type of insulin and no relief during another period with another type of insulin. Another patient was only partially relieved.

350 Central Park West

## Clinical Notes, Suggestions and New Instruments

## COMA DUE TO BROMIDE INTOXICATION

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A white woman, aged 59, had been in a state of alternate coma and delirium for four months. The family history was irrelevant, and except for a chronic or recurring pyelitis there was nothing in the past history that was considered important.

The present illness began insidiously on or near July 20, 1935, and followed a long illness of the patient's daughter. The burden of nursing the daughter had fallen on the patient. The onset was characterized by restlessness, marked emotional instability and disordered, frightening dreams. During the ensuing two weeks these symptoms were intensified, and the patient also complained of blurring of vision and loss of memory. Members of the family noted that there were increasing weakness and ataxia and a growing lethargy. The patient's speech became slurred and her facies vacuous. August 11, approximately three weeks after the onset of the noticeable symptoms, the patient's lethargy had progressed to the point of deep stupor. She lay in this semicomma until November 22, on which day she first showed signs of returning reason. During the period of coma there were frequent outbursts of maniacal excitement, which necessitated restraint. The attacks of mania were apparently reactions to fear-inducing hallucinations. These hallucinations took many forms, but the most frequently recurring were visions of yellow bugs crawling on the bed, policemen threatening the patient with guns and vague, alarming shapes on the walls and ceiling of the room. The patient's diet during the entire period consisted of liquids exclusively, low in quantity and in salt content. The feedings were all forced, the patient taking no food voluntarily. Dextrose solution was given occasionally, both intravenously and by rectum.

On physical examination, November 12, the patient was maximally undernourished and lay in a deep stupor. The temperature was 99 F., the pulse rate 120 and the respiratory rate 18. The latter was not irregular. There were occasional myoclonic movements of the extremities and facial grimaces. The knees were flexed at right angles and in a state of contracture. The skin and mucous membranes were excessively dry, and the tongue was grossly furred. The pupils were pinpoint in size. After dilation with homatropine ophthalmoscopic examination revealed clearly outlined optic disks and normal retinal arteries. There was a pronounced doughlike rigidity of the arms and legs, and the tendon reflexes were markedly hyperactive. The abdominal reflexes were unobtainable. There was no ankle or patellar clonus and the Babinski and Kernig signs were negative.

Examination of the blood showed red blood cells 4,800,000, hemoglobin 94 per cent (Sahli) and white blood cells 7,400 with a normal differential count. The stained smear showed no abnormalities. A voided specimen of urine showed a few white blood cells but no albumin, sugar or casts. Blood urea was 20 mg. per hundred cubic centimeters.

<sup>12</sup> Fleiderbaum J. Ztschr. f. klin. Med. 124: 86, 1933. Williams and Williams II.

<sup>13</sup> Cotte, Gaston. J. de med. de Paris. 47: 596 (July 26), 1928. Hoffman Bing A. Value in Menstrual Disorders. Amenorrhea, Menorrhagia and Metrorrhagia. Zentralbl. f. Gynäk. 54: 1223 (May 17), 1930.

<sup>14</sup> Abel P. Arch. f. Gynäk. 147: 444, 1931.

<sup>15</sup> Poulain Landrieu O. Valeur de thérapie de l'insuline dans certaines troubles ovariens. Prog. med. 49: 1940 (Dec. 1), 1934.

The spinal fluid was under normal pressure and reacted normally to jugular compression. It was water clear and contained no excess globulin or cells. The total halides of the spinal fluid were 706 mg per hundred cubic centimeters (120.7 milliequivalents per liter). The spinal fluid bromides were 452 mg (44 milliequivalents per liter) and the chlorides, 449 mg (76.7 milliequivalents per liter). The replacement of halide by bromide amounted to 36.4 per cent. The Wassermann reaction was negative.

November 14, sodium chloride therapy was begun. Twelve grams of salt, in capsules, was given by mouth daily. In addition, physiologic solution of sodium chloride was instilled into the rectum in quantities of 90 cc every four hours. An attempt was made to increase the total fluid intake to 6,000 cc daily. No sedatives or other medicines were given. Five days after the institution of treatment the patient became rational for brief periods, and during these moments she was able to recognize members of her family. Two days later she was rational during most of the daylight hours, but at night the frightening dreams continued to interrupt her sleep. She was excessively weak, and there were tremors about the mouth and eyes and of the hands. Recovery from then on was uneventful, the tremors, weakness and nervousness gradually disappearing. The contractures of the legs were relieved by massage and passive movements.

After complete recovery it was found that the patient's memory had been lost not only for the four months of the acute illness but for a period extending back to July 4, antedating the onset of the delirium by nearly three weeks.

The patient's mentation and behavior were now those of a normal individual, and she was able to give us the history of the early bromide ingestion. For many years she had taken a "patent" bromide preparation<sup>1</sup> during times of emotional or mental distress. During the severe illness of her daughter, with its attendant worry and loss of sleep, she had taken refuge in this preparation more than ordinarily. After the onset of the delirium, bromides were administered in a mistaken, but understandable, effort to control the great restlessness and excitement. A gram of the drug was given from four to six times daily over a long period of time. This, together with the necessity for a liquid diet, naturally poor in salt (which favored the storing rather than the excretion of the offending halide) adequately explains the extraordinary quantity of bromide found in the cerebrospinal fluid.

#### COMMENT

This case is presented because of the several features of unusual interest, namely, the duration of the coma, the complete recovery, and the extremely high bromide content of the cerebrospinal fluid.

As one of us has written in a previous article<sup>2</sup> and as the papers of McFadden,<sup>3</sup> Wile,<sup>4</sup> Harris and Hauser,<sup>5</sup> Diethelm,<sup>6</sup> Wagner and Bunbury,<sup>7</sup> Zondek and Bier<sup>8</sup> and others may attest, the signs and symptoms of bromide poisoning recur with regularity sufficient to constitute a clinical syndrome. Moreover, we believe that cases of profound poisoning are of frequent and widespread occurrence, not only as a result of self medication but as a complication of the treatment of many chronic and acute illnesses. It is important to realize that the induction of bromide delirium is not concerned solely with the ingestion of bromides but is governed also by the factors controlling bromide excretion, namely, the salt and fluid intake. Because of the usual absence of skin rashes<sup>9</sup> and because a history of the ingestion of bromides is often unob-

tainable or unremarked, the etiology of these puzzling comatose and delirious states is but rarely comprehended. The diagnosis should be suggested by the typical signs and symptoms, together with the negative evidences of systemic and cerebral disease.

Given a comatose or delirious patient, lacking the signs, both clinical and chemical, of constitutional disease and in whom the evidences of upper motor neuron damage are conspicuously absent, the diagnosis of bromide intoxication should receive early consideration. Confirmation of the diagnosis is easily and positively made by the quantitative determination of the bromides of the blood or cerebrospinal fluid, or both.

#### SUMMARY

1 In a woman, comatose for four months, the only positive etiologic factor discovered was an extremely high bromide content of the cerebrospinal fluid.

2 Quick recovery from the coma was obtained by the use of measures designed to increase bromide excretion.

3 On the basis of data found in the literature, and from personal experience, it is suggested that there is a typical symptom complex of bromide intoxication which, in suspected cases, gives sufficient warrant for a quantitative determination of the offending halide even in the absence of a history of bromide ingestion.

19 West Third Avenue

#### IMMUNOTRANSFUSION IN UNDULANT FEVER REPORT OF TWO CASES

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The more prevalent use of immunotransfusion in the treatment of acute infectious diseases has been confined to the last decade. During this period transfusions of both specific and nonspecific immune blood have been reported with gratifying results. Gordon<sup>1</sup> has shown excellent results in the treatment of severe scarlet fever from the use of specific unaltered immune blood of convalescent patients. Stephenson<sup>2</sup> has reported success from the use of both unaltered and citrated nonspecific blood in the treatment of hemolytic streptococcus septicemia. Other writers have presented equally favorable reports concerning immunotransfusion in various types of septicemia.

Quevli and Nelsen<sup>3</sup> described favorable results following the use of whole unaltered blood transfusions in the treatment of undulant fever. As far as was known, the donors used for these transfusions had never had the disease but the results obtained were attributed to a probable passive immunity of the transfused blood. These physicians stated that in their opinion the ideal donor would be one who had recovered from undulant fever.

In the two cases reported here, an effort was made to discover donors with a high antibacterial immunity. In the selection of these donors, the opsonocytophagic index determination as applied by Huddleson, Johnson and Hamann<sup>4</sup> to Brucella infection was used. Briefly, the method described by Huddleson and his co-workers in determining the degree of immunity to Brucella is as follows:

From a prospective donor, 5 cc of blood is collected in a test tube containing 0.2 cc of a 20 per cent solution of sodium citrate in physiologic solution of sodium chloride. The test should be completed within an hour after withdrawal of the blood. Into a clean glass vial such as that used in the Kahn test are placed 0.1 cc of the whole blood and 0.1 cc of a Brucella suspension from a forty-eight hour liver agar slant. After thorough shaking, the vial is placed in an incubator at

From the Tacoma Department of Health and the Porro Biological Laboratories.

1 Gordon J. E. Immunotransfusion in Scarlet Fever. *J. A. M. A.* 100: 102 (Jan. 14) 1933.

2 Stephenson Ruth. Nonspecific Immunotransfusions in Hemolytic Streptococcus Septicemia. *J. A. M. A.* 100: 100 (Jan. 14) 1933.

3 Quevli Christen Jr. and Nelsen M. T. Undulant Fever. *North West Med.* 31: 12 (Jan.) 1932.

4 Huddleson J. Forest, Johnson H. W. and Hamann F. F. A Study of the Opsonocytophagic Power of the Blood and Allergic Reaction in Brucella Infection and Immunity in Man. *Am. J. Hygiene* 23: 917 (Sept.) 1933.

1 Peacock's Bromides. Peacock Chemical Company.  
2 Craven E. B. Jr. The Chemical Picture of Bromide Poisoning. *Am. J. M. Sc.* 186: 523 (Oct.) 1933.

3 McFadden J. F. Neuropsychiatric Manifestations of Bromism. *M. Clin. North America* 11: 541 (Sept.) 1927.

4 Wile U. J. Bromide Intoxication. *J. A. M. A.* 89: 340 (July 30) 1927.

5 Harris T. H. and Hauser Abe. Bromide Intoxication. *J. A. M. A.* 95: 94 (July 12) 1930.

6 Diethelm Oskar. On Bromide Intoxication. *J. Nerv. & Ment. Dis.* 71: 151 (Feb.) 1930.

7 Wagner C. F. and Bunbury D. Elizabeth. Incidence of Bromide Intoxication Among Psychotic Patients. *J. A. M. A.* 95: 1725 (Dec. 6) 1930.

8 Zondek H. and Bier A. Brom im Blute bei Manisch-depressiven. *Irre ein Klin. Wchnschr.* 11: 633 (April 9) 1932.

9 In unpublished data from the Duke Hospital in a series of nearly fifty cases of bromide poisoning there were only two cases presenting skin rashes. Both of these were atypical. Craven<sup>2</sup>.

37 C for thirty minutes. It is to be noted that the cells should not be resuspended after the period of incubation. A drop of the sedimented cells is removed by means of a finely drawn capillary pipet and placed at one end of a clean glass slide, then drawn out as in the usual blood smear. To prevent shrinkage of the leukocytes, the film should be dried as rapidly as possible. The slide is then stained with either Hastings or Wright's stain. The ingested *Brucella* organisms are counted in each of twenty-five leukocytes from various sections of the spread.

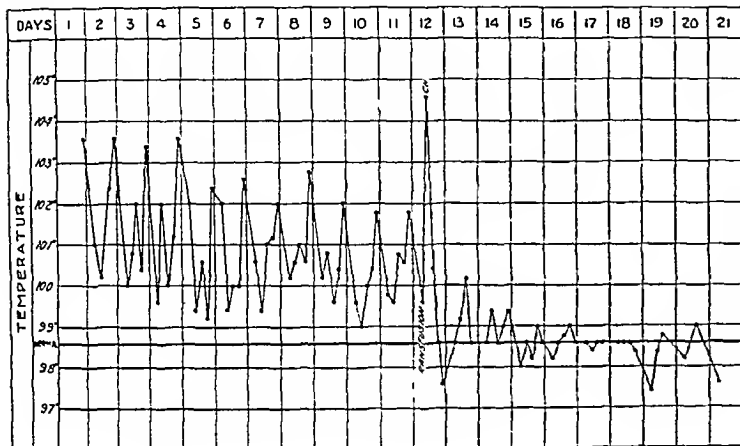


Chart 1 (case 1) — Temperature during course of illness

Huddleson considers that the absence of ingested bacteria in the cells is indicative of a nonimmune person, that from one to twenty bacteria represents slight immunity, that from twenty one to forty bacteria shows moderate immunity and that more than forty bacteria counted in each cell shows marked immunity. (It is suggested that any one wishing to perform this test refer to Huddleson's original article.)

The donors used in the two cases here reported both showed tests of high immunity. In both instances it was impossible to count the ingested bacteria, owing to the marked piling up of the organisms within the leukocytes.

**CASE 1**—A veterinarian aged 30 a patient of Dr E C Yoder, became ill during the first week in October 1933. He had not had a recent illness but during the three preceding months had tested several herds of cattle for tuberculosis and contagious abortion. Also during this period he had attended a cow that had aborted and was compelled to remove a portion of the placenta which had been retained. About one month prior to his illness some sores developed on his fingers which healed with difficulty.

The illness began with a generalized debility, fever, aching and sweating. These symptoms were followed by moderately severe headaches, chills and weakness. The sweating was particularly profuse at night. October 23 the leukocyte count was 6,400 and the differential count was 54 per cent polymorphonuclears, 40 per cent small lymphocytes and 6 per cent large lymphocytes. The agglutination test for undulant fever was positive in dilutions up to and including 1:160. October 27 the patient's leukocytes showed a very slight ingestion of *Brucella* organisms as indicated by the opsonocytaphagic index test. At this time the agglutination test in the dilution of 1:320 was slightly positive. October 28 the patient was given a transfusion of 500 cc of whole unaltered blood. The donor used was also a veterinarian whose blood possessed high opsonocytaphagic power. Three hours after the transfusion a severe chill developed, followed by high fever. However the patient began to show improvement on the following day and the temperature dropped to normal (chart 1). November 16 nineteen days after the transfusion the agglutination test was positive in dilutions up to and including 1:1280 and the ingestion of *Brucella* organisms in the leukocytes was marked. The patient has shown no recurrent symptoms.

**CASE 2**—A civil engineer aged 44 employed by the city of Tacoma, a patient of Dr H G Willard had had many hours

of overtime work during a period of eight days following a flood directing crews of men in opening up new drainage ditches. Much of the work was in the vicinity of a packing plant. Approximately fifty cattle had drowned in the flood area. During this time the patient became greatly fatigued and stated that he was wet most of the time. Three weeks later he became ill with a severe chill and a temperature of 104 F. After a two days rest he felt much improved and returned to work. Within three or four days he had another chill, followed by fever. He again quickly improved but continued to have repeated attacks at varied intervals.

It was not until March 1, 1934, two months after the initial chill that he was seen by his physician. He complained of a left temporal headache which had been more or less constant but was more severe during the attacks of chills and fever. He complained of pains in the joints, particularly the knees and ankles, with marked sweating requiring a change of bedding three and four times each night. He was drowsy and could not remember incidents of recent date. Weakness was pronounced. By March 5 he was compelled to remain in bed continuously. On this date the leukocyte count was 8,100 with polymorphonuclears 66 per cent, small lymphocytes 28 per cent and large lymphocytes 6 per cent. The Widal test was negative for typhoid para A and para B, in all dilutions. Agglutination for undulant fever was also negative at this time. There were no ova or parasites found in the stools. March 15 an intradermal skin test was made with 0.002 mg of a fat free *Brucella* protein prepared according to the method of Levin.<sup>5</sup> A severe reaction was noted in twenty-four hours.

The injected area was 6 mm in diameter and was swollen and indurated.

March 19 the agglutination test was positive in all dilutions up to and including 1:320, and the leukocytes showed a low opsonocytaphagic power. March 20 the patient was given a transfusion of 500 cc of whole unaltered blood from a donor showing a high opsonocytaphagic index. The temperature dropped in a few hours, as indicated in chart 2. The patient returned to work March 25, five days following the transfusion. At this time the leukocytes showed marked ingestion of *Brucella* bacteria. There has been no recurrence of symptoms.

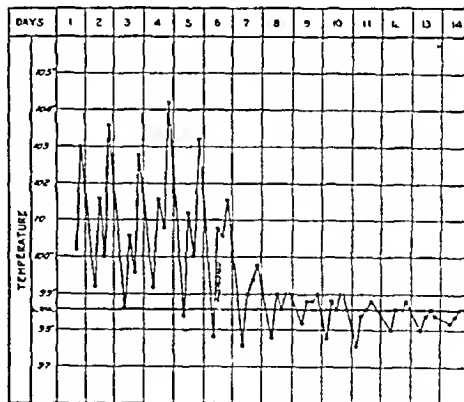


Chart 2 (case 2) — Temperature during course of illness

#### COMMENT

The therapeutic response with immunotransfusion in the treatment of these cases although there were only two, seems to be sufficiently striking for presentation. The results obtained are attributed to the selection of the proper donor by means of the opsonocytaphagic index test. Whole unaltered blood was preferred in these transfusions in order to prevent any possibility of interference with the immune properties of the donor's blood.

<sup>5</sup> Levin, William. The Intradermal Test as an Aid in the Diagnosis of Undulant Fever. *J. Lab. & Clin. Med.* 16: 275 (Dec.) 1930.

## CONCLUSIONS

1 Immunotransfusion in the treatment of undulant fever was a satisfactory method of treatment in the two cases here reported

2 The opsonocytophagic test is a reliable index in the selection of immune donors

3 The opsonocytophagic index paralleled the clinical condition of these two patients

Medical Arts Building

## UNUSUAL CASE OF BARBITAL POISONING WITH RECOVERY

D. K. CHANG, M.D. AND M. L. TAINTER, M.D.  
SAN FRANCISCO

The clinical fatal dose of barbitol has been stated to be about 10 Gm. The toxic manifestations of overdosage are predominantly depression, with fall of blood pressure, increase or loss of reflexes and reduction in temperature and coma. The following case, from the private practice of one of us (D. K. C.), shows the possibility of recovery from a considerably larger dose, after a protracted period of coma. It illustrates an often overlooked fact that barbitol may sometimes cause a marked febrile response rather than the classic depression of temperature.

L. M. S., a man, aged 22, Chinese, weighing 120 pounds (54 Kg.), being despondent over failure to pass examinations swallowed thirty-six  $7\frac{1}{2}$  grain tablets of sodium barbitol, a total dose of 270 grains (18 Gm.). He was found in deep coma twelve hours later and brought to the hospital. No vomiting had occurred, and the stomach was not evacuated, so the entire dose was retained.

When first seen, the reflexes were very sluggish, and the pupils were contracted and not reactive. Respiration was regular with a rate of 42 per minute; the pulse was 164, and the rectal temperature 102.8 F. During the next two days the temperature progressively increased to a maximum of 107.2 with a pulse rate of 200 and a respiratory rate of 54. At this time the systolic blood pressure was 90 mm. of mercury, the diastolic blood pressure could not be obtained. The temperature, pulse and respiration gradually decreased until the ninth day, when the temperature varied between 100 and 101 F., with a pulse of 95 and respiration of 24 per minute. During this period the lungs were clear. No septic process was detectable to explain the high fever. The urine was heavily loaded with red cells and albumin.

On the fourth day the first evidence of return of consciousness was noted when the patient groaned from the insertion of a needle for hypodermoclysis. On the fifth day the patient began to move his head and open his eyes and the next day was able to talk. On the ninth day a bronchopneumonia developed, which caused a recrudescence of the fever. However, he was sufficiently recovered to be dismissed from the hospital on the thirty-fifth day.

The treatment during the first week consisted chiefly of supportive measures. One liter of 5 per cent dextrose solution was given intravenously, and 2 liters of physiologic sodium chloride solution by hypodermoclysis, each twenty-four hours. Caffeine 0.5 Gm. was injected subcutaneously every four hours and camphor in oil subcutaneously whenever the pulse grew weaker. The extremely high temperature was combated by tepid sponge baths and ice packs. In addition, general nursing care, including frequent catheterization during the first week, was given as needed.

## SUMMARY

A man of 120 pounds (54 Kg.) body weight survived a total dose of 18 Gm. (270 grains) of sodium barbitol, taken with suicidal intent. The poisoning was characterized by a deep coma of six days' duration, a very high temperature and rapid pulse and respiration, in contrast to the usual picture of severe depression of temperature and respiration. Knowledge of the fact that this common depressant may produce stimulant responses in some cases should be of value in diagnosis and treatment of cases of barbitol poisoning.

## USE OF MARINE SPONGE AS PRESSURE DRESSING FOR THYROIDECTOMY WOUNDS

WILLARD BARTLETT, JR., M.D. AND ROBERT W. BARTLETT, M.D.  
ST. LOUIS

We have been so pleased with the result of the use of the marine sponge as a pressure dressing for thyroidectomy wounds that we take this opportunity of calling its advantages to the attention of those doing thyroid surgery. Since the popularization of the marine sponge as a means of applying pressure to skin flaps and to skin grafts by Wilray Blair and others, there must surely have been adaptation of this plan to the treatment of the superficial flaps raised in doing thyroidectomy, but such efforts have not, apparently, been recorded. H. M. Richter tells us of using the common rubber bath sponge, which serve the same purpose and is less expensive.

Personal communication with surgeons doing large numbers of thyroidectomies reveals an incidence of serum collection under the flaps varying from 50 to 90 per cent, the consequence is reflected in a recent publication commenting on an incidence of more than 60 per cent of draining incisions as late as the eighth to the tenth postoperative day. Our experience was formerly somewhat similar, even after abandoning infiltration of the operative field with procaine hydrochloride and developing the plan of cervical nerve block; our incidence of fluid collection was more than 50 per cent. Since we adopted the sponge pressure dressing it has decreased to about 10 per cent.

The sponge should be applied over only a few layers of gauze dressing and covered with only a few more layers of gauze. Adhesive tape, encircling the neck behind, is crossed anteriorly over the sponge. The latter should be reapplied whenever the dressing is changed for forty-eight hours after operation. If skin sutures and drains are removed in twenty-four hours after operation the wound will be found to be cleanly healed by the third or fourth day and no further dressing is necessary, as a rule.

410 Metropolitan Building

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER, Secretary

## WESTERN ELECTRIC AUDIPHONE ACCEPTABLE

Manufacturer: Western Electric Company, New York

The Audiphone is an electrically operated, wearable hearing aid. The outfit consists essentially of a microphone, batteries, amplifier, and a bone or air conduction receiver. One type of unit for the less hard of hearing is not equipped with an amplifier.

The receiver employs an armature fixed to the contact surface and a bipolar magnet of high efficiency. As the magnetic field fluctuates with the flow of current through the microphone, the inertia of the magnet causes the receiver to vibrate and the contact surface transmits the vibrations to the bones of the head. The vibrations are picked up directly by the cochlea of the inner ear, thus by-passing certain organs of hearing through which sound normally enters. In cases in which these organs have been impaired by illness or accident, the bone conduction receiver is of particular assistance. In other instances of impaired hearing it has the advantage of leaving the ear open to function together with the receiver. The bone conduction receiver transmits virtually the entire audible range of sound. It fits onto a tiny plug at the end of the transmission cord and can be used interchangeably with the air conduction type of receiver, which is of the conventional type.

The entire receiver weighs slightly over half an ounce and is  $1\frac{1}{16}$  inch wide,  $1\frac{5}{16}$  inches long, and a maximum of  $\frac{9}{16}$  inch deep. The case is made of phenol plastic material.

The power is obtained either from special hearing aid batteries available in four sizes or from three standard flashlight cells, for the latter, a battery case is available but it is not

1 Bartlett Willard and Bartlett Willard Jr. Surg. Gynec. & Obst. 58:737 (April) 1934

part of the standard equipment. The hearing aid batteries, because of their larger size, give longer service per battery unit, but if the flashlight cells are changed when they depreciate below the recommended operating voltage, they are as efficient as the special batteries.

This unit was tested under actual conditions by an investigator selected by the Council, and it was found to be generally satisfactory. When the transmitter is worn under clothing, such as a suit, the firm claims that the loss of amplification amounts to about ten decibels. To obtain the best results, as

is true of all hearing aids, this unit should be worn on the outside of the clothing.

When special hearing aid batteries are sold for hearing units, the Council believes that the battery terminals should be standardized so that a battery, no matter where purchased, will fit all makes of hearing aids. In the case of the Audiphone this has been done, and its battery terminals are those adopted by the Division of Simplified Practices, Department of Commerce, National Bureau of Standards. Furthermore the Council believes that, when these devices are prescribed or sold, the company should permit the patient to try them and be certain that they will fit his specific type of deafness under the particular circumstances in which he is most desirous of aid.

In view of the results of the investigation of this unit, the Council voted to include the Western Electric Audiphone in its list of accepted devices.



Western Electric Audiphone

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

#### SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies 1935 p 391)

United States Standard Products Company, Woodworth, Wis

Scarlet Fever Streptococcus Toxin for Immunization

Prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925, expires 1942) by license of the Scarlet Fever Committee Inc. Marketed in single immunization packages of five vials containing respectively 500, 2,000, 8,000, 25,000, and 80,000 skin test doses of toxin in ten immunization packages of six 10 cc vials containing respectively 500, 2,000, 8,000, 25,000, 80,000, and 80,000 skin test doses of toxin per cubic centimeter.

#### SODIUM CACODYLATE (See New and Nonofficial Remedies 1935, p 88)

The following dosage forms have been accepted

Cheplin's Sodium Cacodylate 0.05 Gm (3/4 grain) 1 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.  
Cheplin's Sodium Cacodylate 0.1 Gm (1 1/2 grains) 1 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.  
Cheplin's Sodium Cacodylate 0.2 Gm (3 grains) 1 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.  
Cheplin's Sodium Cacodylate 0.3 Gm (5 grains) 1 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.  
Cheplin's Sodium Cacodylate 0.5 Gm (7 1/2 grains) 1 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.  
Cheplin's Sodium Cacodylate 1.0 Gm (15 1/4 grains) 2 cc Benzyl alcohol 1 per cent is added for its local anesthetic effect. Prepared by the Cheplin Biological Laboratories Inc. Syracu e N Y.

#### SODIUM CACODYLATE (See New and Nonofficial Remedies, 1935 p 88)

The following dosage form has been accepted

Ampoule Solution Sodium Cacodylate 0.19 Gm (3 grains) 1 cc Prepared by the Lakeside Laboratories Inc. Milwaukee

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BRING, Secretary

#### CELLU BRAND VEGETABLE COMBINATION, WATER PACKED

Manufacturer—The Chicago Dietetic Supply House, Inc., Chicago

Description—Canned yellow string beans, asparagus tips, artichoke hearts, okra and pimiento, packed in water without added sugar or salt.

Manufacture—Cellu canned yellow string beans and asparagus tips, artichoke hearts, okra and pimiento are drained, packed in cans in specific proportions, boiling water is added and the cans are sealed and processed for a few minutes, but not long enough to soften, and cooled.

Analysis (submitted by manufacturer)—

	per cent
Moisture	95.6
Total solids	4.4
Ash	0.5
Fat (ether extract)	0.1
Protein (N x 6.25)	1.0
Crude fiber	0.5
Starch (diastase method)	1.8
Carbohydrates other than crude fiber (by difference)	0.5

Calories—0.1 per gram 3 per ounce

Claims of Manufacturer—Packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

- 1 BONNIE BRAND HAWAIIAN PINEAPPLE CRUSHED, SLICED AND TIDBITS
- 2 BONNIE BRAND HAWAIIAN PINEAPPLE JUICE

Distributor—United Fruit Stores, Inc., Providence R. I.

Packer—Hawaiian Pineapple Co., Ltd., San Francisco

Description—1 Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p 1106, and April 29, 1933, p 1338).

2 Canned Hawaiian pineapple juice retaining in high degree the vitamin content, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p 1769).

- 1 TRUPAK PREMIUM BAKING CHOCOLATE
- 2 DAVIS BRAND COOKING CHOCOLATE

Distributors—(1) Haas Brothers, San Francisco (2) The Davis Store, Chicago

Packer—Moffat Inc., Boston

Description—Ground cacao nibs or "chocolate liquor" in cake form. Same as Moffat Cooking Chocolate Unsweetened (THE JOURNAL, Jan 20, 1934, p 213).

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standards.

- 1 FORT HAMILTON BRAND TOMATO JUICE
- 2 WHITE BIRCH BRAND TOMATO JUICE

Distributors—1 E. H. Frechtling Company, Hamilton Ohio  
2 Carpenter Cook Company, Menominee, Ishpeming Iron Mountain and Escanaba Mich

Packer—Vincennes Packing Corporation, Vincennes Ind

Description—Pasteurized tomato juice with added salt. Retains in high degree the vitamin content of the raw juice, the same as the accepted Alice of Old Vincennes Tomato Juice (THE JOURNAL Feb 20, 1932, p 640).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 18, 1936

## SCIENTIFIC DISCOVERIES AND PATENTS

The problem of medical patents has been agitating the medical profession increasingly in recent years. The "Principles of Medical Ethics" says quite plainly "It is unprofessional to receive remuneration from patents for surgical instruments or medicines, to accept rebates on prescriptions or surgical appliances, or perquisites from attendants who aid in the care of patients."

Through the centuries, medicine has given freely of its discoveries for the benefit of mankind. Vaccination against smallpox, inoculation against hydrophobia, digitalis, and innumerable other methods and medicaments became the property of all who cared to employ them in the control of disease. Now, as medicine has become more complex, involving technical assistants in the fields of biochemistry, physiology, physics and associated branches, great numbers of people who give their full time to the work of the hospital, the laboratory or the care of the sick work with the medical profession but are not bound by the same ethical principles. Moreover, the universities have developed preparations and techniques in their laboratories at considerable expense to the institution, and workers have seen fit to turn over to the universities the control of such products. Thus insulin is controlled by the governors of the University of Toronto, scarlet fever preparations are controlled by the Scarlet Fever Committee Inc., vitamin D preparations by the Wisconsin Alumni Research Foundation of the University of Wisconsin, the Spertt patents by the University of Cincinnati, the Zucker patents by Columbia University, the Doisy patents are controlled by the St. Louis University School of Medicine, and several patents are the property of Stanford University and the University of California.

The American Association for the Advancement of Science published in 1934 a report on this subject with the arguments for and against commercialization of university patents. The problem continues to be studied by the National Research Council and by many other

bodies. The question is one that has concerned the House of Delegates of the American Medical Association, and the Board of Trustees even now is engaged in a survey of the situation.

In the current issue of *Harpers Magazine*, George W. Gray<sup>1</sup> presents an interesting analysis of the present status of affairs as it concerns problems not only in the medical field but in science generally. He points out that separate patent-holding agencies were operating at the beginning of 1936 at the Universities of Cincinnati, Columbia, Cornell, Iowa State College, Lehigh, Pennsylvania State College, Purdue, Rutgers, Utah, Wisconsin, and Wittenberg College. Moreover, the state universities of Illinois and Minnesota, the California and Massachusetts Institutes of Technology, and the Franklin Institute of Philadelphia control either directly or by a committee patents contributed by research workers.

There seem to be three contrasting methods of financial control of university patents: (1) the method of the general holding company, (2) the method of the university holding company, and (3) the direct or committee method. Apparently these methods were established with the chief objective of protecting the public against substitutes and makeshifts. By means of the patent, the inventor can insure that whatever is offered to the public under his invention is technically right.

Mr. Gray feels that, when a new device involves the purity of a process or of ingredients, the public interest is best served by patenting. However, service of the public interest by insuring purity and quality of preparations is far different from commercial exploitation of the fruits of university research.

One of the most cogent arguments now advanced concerns the relationship of a university or research institution to taxation. Endowed universities and research institutions are usually exempt from taxation. They are nonprofit institutions. As an endowed institution, free from taxation, such institutions owe a definite duty to the public, which bears the burden of taxation. This is certainly a practical consideration which may well engage the authorities in the universities responsible for administration of commercially valuable patents.

Again, the exploitation of patents by various universities places them in direct competition with one another, as, for example, the three patents concerned with the development of vitamin D. Under such circumstances the results of current research are jealously guarded and all research probably delayed through failure of research workers to communicate with one another. Indeed, even workers in the same university develop a competitive spirit likely to destroy entirely the type of cooperation in science which is responsible for much of our current progress. The

<sup>1</sup> Gray, G. W. Science and Profits. *Harpers Magazine* 172 (5) (April) 1936.



conception of scientific research is beautifully expressed by Mr. Gray in the following paragraph:

Scientific research, as a recognized full time occupation is one of the youngest of the professions. It has come up out of the basements and garrets of the early experimenters and has attained status among the most honored of the callings of man. Perhaps the laboratory is pressed with economic necessity—but is that warrant for changing its charter? Possibly it can support itself handsomely and independently—but can it survive the shiftings of bases and the readjustments of outlook which commercialization entails? One of its greatest glories is its intellectual integrity and independence—but can this reputation continue unsullied in the clash of competitive sales campaigns of patented commodities, infringement suits and other contentions of the marketplace in which the financial interest of the research institution is on one side of the dispute?

A final consideration concerns the rights of the physician. When our civilization was such as to safeguard the physician considering him as one who gave freely of his knowledge and service to mankind and therefore entitled to special consideration, physicians might well offer freely their time, their service, their original contributions. Our complex civilization of today places ever new burdens on a willing bearer of mankind's tribulations. Surely there was never a problem more complex offered for solution by the best minds of the medical profession.

#### OBITUARIES OF PHYSICIANS PUBLISHED IN 1935

The number of obituaries of physicians published in *THE JOURNAL* during 1935 totaled 3,491. The obituaries of 3,319 physicians of the United States were published as compared with 3,231 in 1934. The total number includes also 172 Canadian physicians, 4 in Hawaii, 2 each in Alaska, France, Philippine Islands and Puerto Rico, and 1 each in Africa, Bermuda, Cuba, England, Germany, India and Switzerland. The obituaries of 83 women physicians were published as compared with 73 in 1934. Graduates of medical schools in the United States for the fiscal year ended June 30, 1935, numbered 5,101. Deducting the number of physicians whose obituaries were published there was a net addition of 1,782 for the year to the ranks of the profession.

*Ages*—The average age at death of those classified as of the United States was 64.2 as compared with 64.3 in 1934. Two physicians lived to be 100 years old and 36 others lived to be 90 or more. Forty-six physicians died between the ages of 25 and 29, 58 between 30 and 34, 74 between 35 and 39, 114 between 40 and 44, 152 between 45 and 49, 254 between 50 and 54, 400 between 55 and 59, 510 between 60 and 64, 499 between 65 and 69, 455 between 70 and 74, 385 between 75 and 79, 225 between 80 and 84, and 109 between 85 and 90. More deaths occurred in January than in any other one month.

*Causes of Death*—Heart disease was again the leading cause of death. Some contributory causes are included in the tribulation, as they have been in former

years. For example, when a report of the cause of death was "chronic nephritis and heart disease," it was published so in *THE JOURNAL* and was recorded on the statistical charts under both diseases. Of the causes of death from heart disease, endocarditis or myocarditis was specified in 355 cases, coronary thrombosis in 220, angina pectoris in 146 and pericarditis in 2. Other diseases of the heart caused 622 deaths. Pneumonia was the second most frequent cause, lobar pneumonia being reported in 270 cases and bronchopneumonia in 90. Cerebral hemorrhage was the third most frequent cause, with 355 deaths, 20 additional deaths were reported as due to paralysis. Fourth on the list was arteriosclerosis with 318 deaths, other diseases of the arteries caused 4. Of 282 deaths reported as due to cancer, the stomach and liver were affected in 56 cases, the intestine in 33, the prostate in 30, in 163 cases the part affected was not specified. Nephritis caused 191 deaths, of which 22 cases were specified as acute nephritis. The number of cases in which embolism or thrombosis, exclusive of coronary thrombosis, was reported was 109, hypertension 84, diabetes and uremia 75 each, diseases of the genito-urinary system exclusive of nephritis, uremia and diseases of the prostate, 56, tuberculosis of the respiratory system 49, other forms of tuberculosis 4, diseases of the prostate 46, cirrhosis of the liver 40, other diseases of the liver 8, ulcer of the stomach 33, appendicitis 29, septicemia 28, influenza 27, senility and pulmonary edema 24 each, paralysis agitans, meningitis and leukemia 19 each, peritonitis 18, cholecystitis and hemorrhage 17 each, intestinal obstruction 16, other diseases of the digestive system 14, gangrene 15, arthritis 12, encephalitis 11, brain tumor 10, pernicious anemia 9, secondary anemia 2, aplastic anemia 1, other diseases of the blood 1, aneurysm and sclerosis 8 each, erysipelas 7, alcoholism, asthma, chronic bronchitis, biliary calculi and cerebromalacia 6 each, abscess, goiter, hemioma and osteomyelitis 5 each, carbuncle, cellulitis, cerebral edema, Hodgkin's disease, mastoiditis, pancreatitis and dementia praecox 4 each, agranulocytic angina, brain abscess, pyemia and streptococcal infection 3 each, acidosis, amebic dysentery, empyema, malnutrition, myelitis, otitis media, peripheral neuritis, pellagra and sinus infection 2 each. Among other causes of death, each given in one case, were acute rheumatic fever, bacillary dysentery, Banti's disease, cerebral infarct, cholangitis, congenital polycystic kidney, diverticulum of the esophagus, diverticulum of the colon, erythema multiforme, encephalomyelitis, epilepsy, Huntington's chorea, heart stroke, Ludwig's angina, morphine poisoning, multiple neuritis, phlebitis, pneumothorax, polythemia vera, purpura haemorrhagica, rattlesnake bite, Raynaud's disease, rupture of the pancreas, ruptured esophageal varices, septic sore throat, syphilis, tetanospasmodia of the spinal cord, tetanus, teratoma of the testicle, tonsillitis, tularemia and undulant fever.

*Accidental Deaths*—One hundred and twenty physicians died as the result of accidents in 1935 compared with 141 in the previous year. Automobile accidents accounted for 71 deaths, 2 more than in 1934. In 1935 deaths from falls numbered 19, burns 6, drowning 5, carbon monoxide poisoning 4, x-ray burns and shooting 3, overdose of medicine 2. One died in the Florida hurricane. One was overcome by gas, 1 was suffocated in a fire, 1 struck by lightning, 1 died of a broken neck from diving into shallow water. In the remaining cases in this group the nature of the accident was not specified.

*Suicides and Homicides*—Suicide was the cause of 47 deaths in 1935, 28 less than in 1934. Shooting accounted for 21 of these deaths, poison for 12, drowning 5, hanging, stabbing and jumping 2 each, incised artery 1, and in the remaining cases the method was not reported. There were 5 homicides.

*Positions*—Among the decedents were 196 who were or had been teachers in medical schools, 407 who served in the World War, 28 veterans of the Civil War, and 45 veterans of the Spanish-American War. One hundred and forty-one had been health officers, 101 members of boards of education, 56 members of boards of health and 24 members of state boards of medical examiners. There were 47 members of state legislatures, 45 mayors, 40 coroners, 25 bank presidents, 15 members of city councils, 14 editors, 10 dentists, 10 police surgeons, 9 missionaries, 7 lawyers, 7 clergymen, 3 postmasters, 2 justices of the peace, and 1 congressman. There were 18 members of the U S Army Medical Corps, 11 of the U S Navy Medical Corps and 11 of the U S Public Health Service.

*Association Officers*—Obituaries of physicians who were or had been officers of the American Medical Association included 2 past presidents, 2 vice presidents, 12 section officers and 2 members of councils. Thirty-two members or former members of the House of Delegates died during the year. Thirty-seven presidents or former presidents and two secretaries of state societies were included among the officials.

### CONTROL OF SYPHILIS AS THE NEXT PUBLIC HEALTH OBJECTIVE

The conquest of syphilis is the next great objective in public health. In spite of the difficulties of compiling statistics on syphilis, sufficient reliable information indicates that it is probably the most prevalent of communicable diseases except for measles in epidemic years. Public health officials have been directing more and more efforts toward the control of syphilis through providing laboratory services for diagnosis, free diagnostic stations and aid through clinics, and free drugs to be used by private physicians in the treatment of the indigent, at least to a noncontagious stage. Recent medical literature has seen the publication of carefully considered studies in standard procedures of treatment.

Four of these cooperative clinical studies<sup>1</sup> which have been printed in *THE JOURNAL* and one taken in part from *Venereal Disease Information*,<sup>2</sup> the monthly bulletin of the United States Public Health Service devoted to this topic, have been combined in a manual of information for physicians.<sup>3</sup>

One of the principal obstacles to the conquest of syphilis has been public squeamishness about facing the problem and the unfortunate classification of syphilis as a venereal disease. It is, of course, a venereal disease only in part. It is principally a communicable disease in the broadest sense. As such it must be handled as other communicable diseases are controlled and discussed with equal frankness. Magazines, newspapers and the radio have been reluctant even to use the word "syphilis." This is a reflection of a popular state of mind which must be altered by educational efforts. There are signs even now of a more liberal attitude. Newspapers are beginning to use the word in headlines, at least a dozen local radio stations of major importance have featured medical broadcasts on the subject,<sup>4</sup> numerous smaller radio stations, especially in New York State, have broadcast transcriptions dealing with syphilis<sup>5</sup> furnished by the health department of the state of New York. When we have placed syphilis in the light we shall have taken the first step toward its conquest.

The history of medical progress shows instance after instance in which the combined forces of medicine and public health have conquered disease as far as public cooperation could be procured. Diphtheria persists only by virtue of incomplete application of preventive measures which have been stressed by physicians and public health workers, smallpox can be extirpated at any time when vaccination becomes universal, typhoid is conquerable by a combination of sanitary engineering and applied immunology whenever these measures are adequately invoked. A greater menace than all of these is syphilis, yet our knowledge is ample for its successful control. With the combined efforts of physicians, public health officials, educators and the public, syphilis can be conquered next.

- 1 Stokes J H Cole H N Moore J E O'Leary P A Wile U J Parran Thomas Jr Vonderlehr R A and Usilton Lida J. Standard Treatment Procedure in Early Syphilis. *J A M A* 102: 1267 (April 21) 1934. League of Nations Investigation and Report on Treatment of Early Syphilis by the Committee of Experts on Syphilis and Cognate Subjects. Zurich. Nov. 21-23. 1934. *ibid* 104: 1379 (April 13) 1935. Cole H N Usilton Lida J Moore J E O'Leary P A Stokes J H Wile U J Parran Thomas Jr and Vonderlehr R A. Cooperative Clinical Studies in the Treatment of Syphilis in Pregnancy. *ibid* 106: 464 (Feb. 8) 1936. Vonderlehr R A Bundesen H N Moore J E Nelson N A Pelouse P S Snow W F Stokes J H Wile U J and Usilton Lida J. Recommendations for a Venereal Disease Control Program in State and Local Health Departments. *ibid* 106: 115 (Jan. 11) 1936.
- 2 Moore J E Cole H N O'Leary P A Stokes J H Wile U J Clark Talliaferro Parran Thomas Jr and Usilton Lida J. Cooperative Clinical Studies in the Treatment of Syphilis. The Treatment of Latent Syphilis. *Ven. Dis. Inform.* 13: 317 (Aug.) 351 (Sept.) 371 (Oct.) 389 (Nov.) 407 (Dec.) 1932.
- 3 A Manual of Information for Physicians on the Treatment of Syphilis and the Control of Venereal Disease. Chicago. American Medical Association. 1936. 10 cents.
- 4 Unpublished communications to the Bureau of Health and Public Instruction. A M A.
- 5 Health Hunters Broadcasts Cited for Exceptional Merit. *Health News*. New York State Department of Health. Albany. N. Y. June 10, 1935. p. 92.

## Current Comment

### INFECTIOUS ANEMIA OF HORSES

A question has arisen recently as to the possibility of the transmission to man of infectious anemia of horses (swamp fever) by the administration of serums or antitoxins derived from the horse. As far as can be ascertained, transmission to man in this way has not occurred in this country or elsewhere, but two apparently authentic cases have been reported of infection in human beings after direct contact with the disease in horses. Luhrs,<sup>1</sup> a German veterinarian working with infected horses during the war, developed febrile symptoms, diarrhea, pain in the kidneys and signs of anemia. For three years his blood and filtered serum each produced symptoms of infectious anemia on inoculation into horses. Later, Peters<sup>2</sup> described a case of severe anemia (2,000,000 erythrocytes) in a patient after exposure to horses ill with infectious anemia, other symptoms being diarrhea, headache, a herpetiform eruption, occasional elevations of temperature, lumbar pain and general debility. A horse injected with the patient's blood and two horses injected with filtered serum in each case developed symptoms of infectious anemia and died. The disease in horses has a wide geographic distribution throughout the world and has occurred in a number of states in this country. It is insidious in its spread and, especially since horses may carry the virus without obvious symptoms of illness, it is possible that infected animals may gain entrance into establishments producing biologic products for human use, despite precautions that are or could be taken. If human cases presenting suggestive symptoms following the administration of serum or antitoxin are observed, the possibility of infection with the virus of infectious anemia should be considered. Apparently the only satisfactory confirmatory test would be the inoculation of a susceptible horse as was done in the two cases mentioned.

## Association News

### RAILROAD TICKETS TO THE KANSAS CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION, MAY 11-15

When you purchase your ticket to the Kansas City meeting of the American Medical Association May 11-15, be sure to ask your railroad ticket agent for a certificate which, when properly certified to and validated will entitle you to purchase a return ticket to your home over the same route traveled to Kansas City at one-third the fare paid to Kansas City. No refund of fare will be made on account of failure to present a validated certificate when purchasing return ticket. For additional details about transportation to Kansas City see *The JOURNAL of the American Medical Association of April 11, 1936, page 1281*.

<sup>1</sup> Luhrs. *Ztschr f Vet Kunde* 32:89 1920  
<sup>2</sup> Peters. *Presse med* 32:105 1924

### THE KANSAS CITY SESSION

#### American Branch of International League Against Epilepsy

A dinner meeting to organize the American Branch of the International League Against Epilepsy and to discuss the investigation of epilepsy will be held at the Hotel Muehlebach Tuesday evening, May 12 at 6:30. Those who wish to attend please inform the exhibitor in booth 673 before Tuesday noon.

#### APPLICATIONS FOR GRANTS FROM COMMITTEE ON SCIENTIFIC RESEARCH

The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms and further information address the committee at 535 North Dearborn Street, Chicago.

#### DISTINGUISHED GUESTS AT THE KANSAS CITY SESSION

The general scientific meetings at the Kansas City session present this year two distinguished guests from abroad who will no doubt, be greeted with great interest by American physicians. Lord Horder has been physician in ordinary to the prince of Wales, now king of England, since 1923. He is a graduate of the University of London and of St Bar-



LORD HORDER

tholomew's Hospital, consulting physician to the Cancer Hospital, ex-president of the Harveian Society of London, president of the National Birth Control Association and consulting physician to numerous other organizations in both the medical and public welfare fields. He has interested himself particularly in recreation, physical training, eugenics, child guidance, the antinuclear movement and the cremation society. He is known also for his contributions to medical investigation and is the author of *Clinical Pathology in Practice*, *Cerebrospinal Fever*, *Medical Notes*. The *Essentials of Medical Diagnosis* and similar works. He will address the assembly at the annual session in Kansas City on thyrotoxicosis.

Dr Afranio do Amaral of Brazil is head of the Institute at Butantan near São Paulo. Dr Amaral is a graduate of Harvard and has for years been recognized as among the leading authorities in the world on snake poisons and antivenoms. The Antivenom Institute which is a part of the Butantan Institute, is known throughout the world. The institute is equally known



DR AFRANIO DO AMARAL (seated) extracting poison from a rattlesnake

for its investigation in the fields of spotted fever and of Rickettsia. It has charge of the preparation and development of most of the biologic preparations used in Brazil. Dr Amaral will speak at Kansas City on snake poisons. In the illustration he appears on the right extracting the poison from a rattler.

### BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session.

#### NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company:

May 11, 4:30 p. m. Nutrition and the Future of Man by Dr. James S. McLester, President of the American Medical Association. Fifteen minutes.

May 12, 4 p. m. Medicine Marching Forward. The regular dramatized program "Your Health" (originating in Chicago) based on papers or exhibits presented at the convention. Thirty minutes.

May 13, 12 noon. An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes.

#### COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System:

May 11, 1:30 p. m. An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2 p. m. A news broadcast outlining the main events of the convention. Dr. W. W. Bauer. Fifteen minutes.

May 15, 5:45 p. m. Medicine Yesterday and Today. A dramatized program (originating in Chicago) based on papers or exhibits presented at the convention. Thirty minutes.

The hour given is central standard time. Eastern standard time is one hour later, mountain time one hour earlier and Pacific time two hours earlier.

### RADIO BROADCASTS

The American Medical Association broadcasts over WEAF the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health." The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

**Red Network**—The stations on the Red network of the National Broadcasting Company are WEAF, WEEL, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGI, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAT.

**Pacific Network**—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

April 21	Health and the School	Morris Fishbein M.D.
April 28	Infant Care	W. W. Bauer M.D.
May 5	Maternal Care	W. W. Bauer M.D.

### ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Thirty Second Annual Meeting held in Chicago Feb. 17 and 18, 1935  
(Continued from page 1319)

DR IRVIN D. METZGER, Pittsburgh, in the Chair

### THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 18—MORNING

#### The Federation and the Survey of Medical Schools

DR WILLIAM D. CUTLER, Chicago. I am able to make a partial, incomplete report on some phases of the survey of medical schools that has been going forward now for about a year and a half. The actual visitation of the schools will probably be completed by the first of June. In carrying out this survey, we have relied on two essentially different and yet complementary methods. The first step in our investigation of a medical school is to send forms asking for information regarding the organization and teaching methods and facilities of the different departments of the institution, also for a brief personal history of the members of the faculty who carry on a substantial part of the teaching program. These forms have been filled out by all the schools to which they have been sent and returned to us. However, in spite of our best efforts to make the meaning of these questions clear, some of them are misunderstood, some of them may be slighted, some of them may be inaccurate, and it requires a personal visit to the school and a conversation with the men who have completed the forms to complete and round out the entire picture. We were able to borrow from the University of Syracuse the services of Dr. Weiskotten, who has been dean of that school, professor of pathology there for a long time and is a keen student of medical education. Dr. Weiskotten has made every one of these visits so far. At all times he is accompanied by some one else—a representative of this federation, a representative of the college association, sometimes another member of the Council or some one selected by us to go with him. That gives added importance to the visit, because we are not relying on the observations of a single individual but have in every case the observations of two individuals. The observations made

by these visitors are dictated by Dr Weiskotten every night, and the notes are filed in our office, so that we have a written record, fresh, first hand, to supplement the questionnaire forms which have been submitted as a basis for our permanent and more elaborate study of the schools. So much for the method of the survey.

The first thing that came forcibly to our attention when we began this work was that probably the most important single factor in the character of the work being done in the medical school is the character of the student body. This is along the line of what your president told you last night and what Dr McLester said yesterday afternoon. The most important factor in the quality of the work done by the medical school is the personal qualification, ability, industry, zeal of the medical student himself, so that the most important part of the school lies in the selection of medical students. For ten years there have been more applicants for admission to medical schools than could be received and the schools have been in a position in which they were more or less compelled to make a selection. The evidence that the dean or the admissions committee has on which to make a selection is, of course not as complete as we would like to have it. Unhappily we have not yet discovered any exact means of measuring the personal traits that are all important in determining the success and the usefulness of a physician, but we do have before us the student's academic standing in college, and that serves as one piece of evidence. Lately we have introduced the aptitude test, which brings in another factor in measuring the qualifications of these students. We do not yet know just how much importance we should attach to the aptitude test. Some schools rely a good deal on personal interviews with their candidates. Other schools are less confident. Not all of the schools are dealing with this matter as successfully as we would like. Some of them are a little lax in selecting the last half of their class. Doubtless financial pressure has something to do with it.

I want to make it clear that the Council in undertaking this survey, has not started out with the idea that it was going to reduce the number of medical students. We are not primarily concerned with the number of medical students or the number of men in the medical profession. Our job is to formulate standards of medical education, and if the formulation and enforcement of proper standards should reduce the number of medical students, it must be accepted as an inevitable consequence, just as it was twenty-five years ago. On the other hand if the formulation of proper standards should lead to an increase in the number of medical students that again is not our concern. We are concerned with the formulation and application of proper standards of selection and proper methods of teaching.

During recent years, probably owing to the period of depression, a good many schools have allowed themselves to yield to the demands of this increasing number of applicants and to take in larger numbers of students than they have been able to care for properly. In some cases their laboratories are overcrowded. In some cases they have to run two or three successive sections multiplying the teaching load of their instructional staff. Most of the schools in which this condition has been found have expressed their readiness to cooperate with us by reducing the size of their student body. But please get it in your minds that the purpose of this survey is not the reduction of students but the preparation of better trained and better qualified physicians.

Another feature that stands out in our survey so far is that the teaching of the clinical subjects has not advanced as satisfactorily as the teaching of the laboratory subjects. We have found that the older, purely didactic methods of teaching by lectures or large clinical demonstrations have persisted to an extent that is not in conformity with the best methods of teaching at the present day. We believe that the only way one can teach a man to examine a patient is by having him examine the patient. The actual teaching, the backbone of the teaching of medicine, surgery, obstetrics and pediatrics must be through personal application by the student to the examination of the patient of the methods that he has been taught under close supervision, so that his work is immediately checked and corrected and so that he learns each day to do the work better and better. That kind of teaching takes time. It takes an abundance of clinical material. One of the weaknesses that

has been generally manifested has been the failure to develop that kind of teaching. This is manifested in an important way in obstetrics. Ever since the Council formulated its first standards for medical schools, it has specified that each student should personally conduct a number of labor cases under supervision. We find that that standard is being honored in the breach more than in the observance. There is some difference of opinion. There are those who believe that obstetrics has become a specialty comparable with eye, ear, nose and throat work, with major surgical work and that the graduate in medicine even after the completion of an intern year, ought not to be expected to do obstetrics and therefore they make the subject elective. This is a question of social philosophy. If the philosophy that has prevailed up to the present time is correct, we have got to ask some of these schools to be a little bit more particular in carrying out this particular requirement.

There is one other feature. A medical school cannot be run without money, and especially during these hard times, some of the schools have been severely pressed. Some of them have had to cut salaries. They have had to diminish the size of their staff. We feel that those cuts should be made in other divisions of the school. I believe we are justified in asking these schools whatever else they may do not to cut down on anything that has to do with the training of physicians.

### The Two Year Medical School

DR G. M. WILLIAMSON, Grand Forks, N. D. Twenty-five or thirty years ago these groups meeting today favored the idea of two year medical schools. The incomplete schools were not only welcomed but enjoyed high rating from the start and with minor exceptions they have held that rating until this time. It seems to me that fair and unbiased recognition should be given to any incomplete school that is doing satisfactory work. The chief argument against the two year schools at this time seems to be that they are unable to make the necessary correlation between the laboratory and the clinical work and that newer and better ideas of medical education do not approve of the handling of courses considered good practice some twenty-five years ago. Probably the best correlation of all is done by the wise teacher and has little or no relation to elaborate provision or organization. I am sure that it is the experience both of students who began their training in the incomplete schools and of the schools themselves that transfer students are in general at no disadvantage whatever. It is the experience of North Dakota students and of the clinical schools to which they have gone that they find no difficulties in making adjustments. It is sometimes questioned whether students who complete two years of work in an incomplete school are able to transfer or find opportunities to continue their studies. It is of course true that the continuation of any two year school depends not only on its being able to give satisfactory instruction but on the ability of complete schools to accept its students. It is the experience of the school in my state, and I think this is typical that no student who should at all be encouraged to go on has failed to find an opportunity to do so. The two year schools are small schools or should be. Their students finishing in medicine are a little more likely to go into general practice and into the more rural parts of the country than are students that come from the more congested centers. These schools are in a favorable position to know of aptitudes, attitudes and other elements of personality and character that should be taken into consideration in selecting students. The intimate contacts of teacher and student operate to many advantages. The fact that a transfer must be made in order to complete the training is at once a challenge to good work felt by both instructor and student. Only one student who has finished the curriculum at the University of North Dakota with the graduation average has so far failed to find an opportunity to go on. Of forty-five students that transferred to Rush in the few years just preceding 1934 twenty-two had made slightly higher average grades than they had made here nine had exactly the same averages and fourteen had dropped slightly. Of thirty-nine North Dakota students transferred to Northwestern from 1927 to 1934 one died and thirty-eight have graduated there or are in the present graduating class. Of the thirty-eight three finished or graduated there in the upper one tenth of their respective classes, thirteen in the upper one fourth and twenty-eight, or nearly

75 per cent, in the upper one half. The six students who transferred to Pennsylvania from 1923 to 1933 made the second highest group average in the work of the third and fourth years. (The highest group average was made by the students transferring from Utah, the second by those from North Dakota, the third by those from other complete or four year schools, the fourth by the large group of Pennsylvania's own students.) After completing two years of medical training, students in acceptable schools are eligible to write on part 1 of the National Board examination. Thirty-eight have passed in all subjects at once, eight have made partial failures, but most of these have rewritten the subjects in which they were low and received the certificate later in accordance with the rules of the National Board, four have failed. It seems to me that the University of North Dakota School of Medicine, and the same is true for the other two year schools, is needed for several reasons. In this argument for continuation of the two year school in the Middle West, I believe that the Council directing medical education should seriously consider conditions existing in sparsely populated parts of our country. A careful survey of medical education should include not only all the schools that have to do with regular medicine but all schools or efforts of any kind that pretend to train men for any form of the so-called healing arts. If it is deemed necessary to limit or to reduce the number of men entering the profession a better way for all concerned than to eliminate the two year schools or to make unreasonable demands on them would seem to be to prorate the number of admissions each school should accept, or to advance the requirements for entrance or both. In prorating or limiting admissions consideration should of course be given to both the facilities of a school and its location and the reasonable service that it might be expected to perform for either a limited or a wider territory. If requirements are to be increased, it would seem that the added requirements should be in the way of quality of the work done rather than in any total or specific quantity.

DR BENJAMIN J. LAWRENCE, Raleigh, N. C. I believe and most of the influential physicians in my state believe that there is a definite place in American medical education for the two year medical schools. I believe that the presence of the two year medical schools is sound in theory and in practice. The medical course today and as administered throughout this country is long and arduous. Most boys graduate from college young and it is a decided advantage to many of these youths if they can remain at their original college of liberal arts or at their own university for an additional two years, during which time their characters become more mature and better rounded. They are closer home in many instances. There is another important phase to be mentioned. In these two year medical schools the student comes in contact with the faculty in a close relationship. The influence of the professor plays an important part in shaping the lives and future of these young men entering the medical profession. This is not feasible in the great universities. What a blow to our profession it would have been had we not had on the lives of their students the influence of such men as Gross, the elder, Da Costa, D. Hayes Agnew, Joseph Leidy, Marion Sims, Murphy and Nicholas Senn. Medical schools were relatively small when these men were developing. The teachers in the two year schools in North Carolina have played a tremendous part in shaping the destiny of the profession in our state. Such is not the case in an overcrowded school of several thousand students. Many of the finest doctors the world has produced came from humble parentage. These stalwart individuals fought their way up and obtained admission into a medical school. The people of my state feel that the medical course is long enough and that it is already too expensive. It taxes the physical strength and frequently exhausts the financial ability of the student and of his family. Had it not been for the two year medical schools in North Carolina many of the leading doctors in North Carolina would never have had the opportunity to enter on their career. We beg of you to allow these two year schools to remain for the benefit of the people in the rural districts who need their product and for the benefit of the student who is most worthy in every particular and yet whose financial condition is very limited. These boys enter the junior classes of the best four year medical schools in the world. They stand shoulder to shoulder with the men who took their first two

years at the great four year medical schools. They are not inferior in character or in scholastic standing and they make as good doctors as ever practiced. The medical profession needs the two year schools because it needs the fine type of manhood grown under rugged circumstances. Society needs the two year medical schools. Doctors are concentrating in large cities, but in many instances the rural districts are actually in need of doctors. My state is a rural state. We have had our two year schools for thirty years or more. Of more than 2,000 doctors in North Carolina, about 1,600 active today, nearly all took their training at one of the two schools which now offer just two years in medicine. A ruling that would seriously handicap these institutions would arouse organized medicine in our state. We have demonstrated for half a century that we can control the supply of doctors in North Carolina and we believe in keeping the standard high.

## DISCUSSION

DR EDWARD A. KNOWLTON, Holyoke, Mass. I should like to ask the speakers whether there is any great percentage of students in these two year schools who have been refused admission to the four year schools. I ask that with the idea that the number of applicants to the larger schools exceeds those they take in, ten to one. I wondered whether there were many going to the two year schools who have previously been refused admission to the larger four year schools.

DR H. E. FRENCH, Grand Forks, N. D. I think probably I can answer that. We have a great many applications from the class you speak of. We do not take them. Our students are practically all from our own state. We probably have some from some western state where there are no medical schools.

DR KNOWLTON. I wanted to find out whether many of these two year students had already applied for admission to a four year school and been refused admission.

DR THOMAS J. CROWE, Dallas, Texas. After hearing the young man from North Carolina, it seems to me that he is justified in everything he said with reference to the first two years in medicine, unless pathology and technical subjects are carried over into the third and fourth year. I find that the universities are not giving the men enough fundamentals in the first two years. I am speaking now of the academic institutions.

DR ERWIN SCHFAK, Des Moines, Iowa. There is such a thing as unfitting a doctor for certain types of practice. He can be kept in college so long in clinical work so long in laboratories so long and in hospitals so long that he will not go into the rural areas. Even in Iowa there are rural districts that are insufficiently supplied with medical talent. I think they have a peculiar condition of their own, and I do not think that any group should arbitrarily determine what they are to have and what they are not to have. I do wonder, however, what preliminary qualifications they expect. Nobody has discussed that.

DR E. H. KLOMAN, Baltimore. I am not especially interested in any of the two year schools, but my belief is that they have a much better selection of students than the big colleges have. Secondly, I think the personal touch which they have is much greater and they turn out men who have been in personal touch with the teachers to a much greater extent than in the larger schools.

DR FRANK M. FULLER, Keokuk, Iowa. In our observations of progress in medical education, we do not give proper consideration to past development. I was connected with a school which went out of existence. That school was established in Iowa the first school ever established west of the Mississippi River in 1849. That school went on successfully to 1908 and then it could not meet the demands of medical education and it merged with Drake University. Then, because the city of Des Moines could not handle the job, it merged into the great University of Iowa College of Medicine. In 1927, nineteen years after the Keokuk Medical College closed its doors there was a gathering of some of the graduates of that school at Iowa City. I said to those men, 'Why do you want to come back twenty-five years after your alma mater has closed its doors?' They told me over and over again, 'We want to come back because we appreciate the personal effort that the faculty



of Keokuk Medical College made to start us" These small schools have a place That school provided the great western growing country with excellent, capable, competent men, who have risen to high places in the profession These two year schools may be doing the same thing today

DR GEORGE M WILLIAMSON, Grand Forks, N D I want to correct my friend from Iowa In a school established in North Dakota thirty years ago a requirement for admission was two years of college work I doubt that you had that in your schools in Iowa at that time

DR BENJAMIN J LAWRENCE, Raleigh, N C That reminds me that the distinguished John Farrell, who is now with the Rockefeller Institute, came from one of these small and insignificant schools

### Comments on National Board Examinations

DR J STEWART ROYMAN and EVERETT S ELWOOD Philadelphia The National Board of Medical Examiners has just completed its second decade The fifteen original members laid the foundations of this undertaking with care They sought and secured the approval of the House of Delegates of the American Medical Association The Secretaries of War, the Navy and the Treasury authorized their respective surgeon generals to participate in the board's activities The Federation of State Medical Boards endorsed the plan, and its leaders gave freely of advice and valuable assistance The deans of the medical colleges and many of their department heads contributed the scientific guidance which determined the nature and scope of the examinations Exchange visits by committees of the examining boards of England and Scotland and of the National Board of Medical Examiners were made, with the result that the young board in this country had the great benefit of the advice and experience of these distinguished overseas boards which have been conducting national medical examinations for a century and a half

Four of the organizations mentioned—the Council, the federation, the Association of American Medical Colleges and the federal services—have from two to six representatives each in the membership of the National Board Medical training has undergone changes and an elevation of standards during the past twenty years These have made it possible for a comprehensive medical examination on a nation-wide basis to be of service to medical education in ways not contemplated when the National Board was organized Some of the medical colleges in this country introduced the comprehensive examination and its use in this field has been growing Perhaps owing in part to its newness and in part to lack of a full understanding of its purpose, this type of examination has in some instances failed to be a real test of the student's mastery of a major division of medical study A satisfactory definition of the comprehensive final examination as given by Prof Edward S Jones of the University of Buffalo is "an examination of a college student covering subject-matter greater in scope than a single course" The examinations of the National Board of Medical Examiners and those of the state medical examining boards are referred to by Dr Jones as final comprehensive examinations He demonstrates conclusively however, that a real comprehensive examination must be more than a factual test of memorized details The National Board is earnestly striving to give a broad comprehensive examination Many of its questions begin with the word discuss It is an examination by outside examiners, all of whom are prominent members of the faculties of medical schools

In addition to the written examinations part I and part II, the three day practical and clinical oral examinations, part III, affords an opportunity to try out the young physician in action Here he is given patients to study and laboratory problems to solve which are similar to those he will meet in actual practice In the division of clinical medicine of part III, for example, he studies the patients assigned to him takes a history of the so called long case and makes his diagnosis and prognosis Then two examiners—one asking questions the other appraising the answers—thoroughly discuss the case with the candidate not only as to his conclusions but also as to the reasons for these and his estimate of the various factors involved A distinct effort is made to clinicalize the examinations so far as possible Even the examinations in physiology

biochemistry and pharmacology are conducted at the bedside when suitable cases are available

The six main divisions of part III are subdivided, and the grade in a main division is made up of the grades attained in its subdivisions A candidate passes this part if the average of his grades in the main divisions is 75 per cent or more Recently the board has adopted the rule that grades below 60 per cent in any of the subdivisions are not acceptable if the grade for the corresponding main division is under 75 per cent In such cases the candidate is "referred" in this subdivision and required after a three months interval to pass a reexamination This regulation is proving satisfactory The National Board examinations the board believes might properly be called a barometer of medical education When a representative number of students from any one school pass the National Board's examinations year after year with a degree of success higher than the average for the whole group taking the examination, it is fair to conclude that such results indicate that these students have received a medical training equal to the best given in this country today

A number of medical schools are making a study of the results which their students attain in the National Board's examinations The printed reports of the examinations which carry the individual records by identification numbers only, are sent to schools that so request The identification numbers of the students at the schools receiving the report are checked to indicate which were their students in the examination The reports enable them to determine how the students at their school passed in comparison with the group as a whole It also enables them to determine how their students handle each subject in the examination in comparison with the group as a whole and in comparison with the success of their students in other subjects of the National Board's examinations Should the grades in any one subject fall very high or very low in comparison with the grades made by the same students in other subjects, it is apparent that either the examination in this subject or the teaching was not in line with the examinations and the teaching in other subjects The board recognizes the great responsibility that this use of its examination places on those charged with their direct conduct Five schools are now requiring their students to take and pass either part I of the National Board's examinations or both parts I and II Several other schools have given their students the option of taking the National Board's examinations or the school's comprehensive examination In one or two schools, passing the National Board's examinations in part I excuses the candidate from a portion of the final comprehensive examination given at the end of the fourth year The three organizations now conducting the survey of medical schools, namely the Council on Medical Education and Hospitals, the Association of American Medical Colleges and the Federation of State Medical Boards all have representative members on the National Board of Medical Examiners As to the future we wish to say that in the improvement and the conduct of its examinations the board must depend largely as it has in the past, on the medical colleges and the hundreds of their faculty members who are so generously assisting in its part III clinical examinations in the twenty-two established centers throughout the United States

### Final Objective

DR HAROLD RAPINS ALBANY, N Y It has been eight years since I first suggested the proper subdivision of functions among the various interested bodies, and six years since the responsibility of the supervision of medical education was placed in the hands of the Association of American Medical Colleges The results have been disappointing The association has failed to provide the funds and the administrative machinery necessary for the inspection and supervision of medical schools throughout the country Largely as a result of this failure and in view of the long period that had elapsed since any thoroughgoing inspection of our medical schools had occurred the Council on Medical Education and Hospitals during the past two years has undertaken a complete reinspection of all the medical schools of this country and Canada This has been done with the cooperation of the Association of American Medical Colleges and the federation but the terms of this cooperation have been indefinite and confusing In my opinion unless the final results of this survey have the support

of the Council the association and the federation, acting as a joint cooperating body, its effectiveness will be diminished. On the other hand, there is no gainsaying the fact that a great deal of good has already been accomplished by the survey. A large number of schools have definitely recognized their weak spots and have taken steps to remedy them.

The survey has spelled the end of any form of medical sectarianism in our schools. The problem of the two year schools is at last receiving the serious consideration which it deserves. Not least of the accomplishments has been the definite limitation in the number of students admitted as freshmen in various medical schools. The need for regular, complete reinspections at not too infrequent intervals has been demonstrated. One of the objectives considered by this survey has been the approximate number of physicians who should be trained each year and the capacity of our medical schools to train a definite number.

It should not be overlooked that as far as the protection of the public health is concerned the control of medical education and licensure is ineffective unless at the same time there is adequate machinery for the elimination of unlicensed practitioners and the discipline of licensed physicians. Possibly the greatest stimulation to the solution of these problems has been this annual congress, in which the interested bodies have freely exchanged ideas. It is probable that a permanent organization made up of representatives of these various bodies or at least a permanent consulting committee of representatives of these bodies might make more effective the achievement of the final objective.

#### DISCUSSION

DR JOHN H. J. UPHAM, Columbus, Ohio. The discussion of the two year school has been thoroughly carried out so that I will restrict my remarks largely to the inspection of medical colleges going on at present and the final objective. I think we all feel a deep sense of appreciation to the American Medical Association and to the Council for undertaking this very arduous work. To me, the great question is: What are we going to do about it? For over thirty years I have been connected with a medical college starting in a very humble capacity and working up in the last ten years to an administrative position. Almost as long as I have been in practice I have been interested in organized medicine and I am extremely anxious that the position of the American Medical Association should be thoroughly understood. For twenty-three years I have been a member of a state medical board. I can look at these things, therefore, from three different angles. It seems to me that we have a sort of military body, that the Council of the Association might be compared to the general staff, the Association of American Medical Colleges might be compared to the commissary or the quartermaster's department, and the members of the state medical boards are the men in the field and really in the front-line trenches protecting the people from unqualified practitioners. Recently I took occasion to analyze the character of the membership of the state medical boards. Without counting those few states that have duplicate boards of different schools, there are practically 314 members on the forty-eight state boards and the board of the District of Columbia. Of the 300 professional members of the boards, 119 are listed in the American Medical Directory as general practitioners. 160 of them are listed as specialists with a strong leaning toward surgeons. Twenty-one are listed as teachers, having some connection with a medical college. Such a group of men cannot give to other people, to any other group, the actual duty of police power. That group should not be allowed to assume the onus of responsibility and criticism which would undoubtedly arise from some quarters. The only solution it seems to me is that this federation of boards should work out a method of active cooperation that will be for the best interests of the public which we serve. To my mind the best solution of that sort would be as Dr Rypins suggested a representative body that shall combine the interests of all three of the organizations that are interested in this subject, that we should have a representation from the Council but the work of the Council is really fact finding. The Council should report to this body composed further of representation from the Association of American Medical Colleges and a goodly representation from the Federation of State Medical Boards. The members of this body could then work out a plan from their own needs

in their respective localities, from their interest in the fact that they must bear the responsibility of licensing and, therefore, guaranteeing to the people of their own state the quality of the candidates who come to them for examination. I think this body could go further. The present curriculum is in a very unsatisfactory state. As administrator I am constantly under pressure from all sides, specialists demanding more time for their respective specialties. We are trying to crowd the whole field of medical science into four years of instruction. Our students are dissatisfied, this can be seen from the fact that more and more of them are taking two years, three years and four years of postgraduate instruction in connection with hospital service. I feel that an organization of bodies such as I have mentioned could work out a curriculum that would be for the production of what Dr Bierring spoke of yesterday, the basic doctor. Perhaps we might then work out a plan for the legalization finally of the various specialties. But our present curriculum must be cut down in unessentials in order that we can give our graduates, really, a basic foundation for the practice of medicine.

DR WILLARD C. RAPPLEYE, New York. It seems to me that the inspection of the medical schools is putting the emphasis where it belongs, namely, on the quality of the educational process in these various institutions. I am sure, as I see the group working, that it is quite solicitous for these so-called two year schools, which might more appropriately be known as partial medical schools, as they are for the four year schools. After all, the basis on which the approval of any individual school ought to be made is the quality of the instruction in that institution. What was emphasized this morning also is extremely important, namely, that the unit of education is after all, the student and since it is not a matter of subject or of credits but of the character, the industry, the personality and the other qualifications of the individual student, that is the crux of all education. The second thing that this survey is bringing out is the fact that the medical course as such is a unit and that we are not so much concerned with the individual subjects of a curriculum. After all, what we are concerned with in the federation more particularly perhaps than even the individual schools is the end product, namely, a qualified man to go into the practice of medicine with safety. Perhaps we have seen in the setting up of this survey or reclassification of the medical schools one more historical step being taken in the direction of an ultimate plan of licensure in this country which began in 1904 with the setting up of the Council and other studies that have been made, namely, that we are ultimately going to come to licensure on the basis of training and not on examination. Roger II of Italy was perhaps the man who first formulated that, 700 years ago, and that has been recognized all over Europe as the basis for licensure, namely, an adequate training in a recognized institution. It is my hunch that we shall undoubtedly see licensure in this country on the basis of training rather than examination. Dr Upham elucidated the idea of a better correlation between these various agencies. I think that at the moment we are entering into another period of confusion unless we get some better coordination and integration of these various activities. One cannot help but be struck by the situation in this country, the similarity between it and that which existed in Great Britain just prior to the establishment of the General Medical Council in 1858. In educational matters we in this country are fifty or sixty years behind the older countries of Europe. I think that we are approaching a period when we are going to come to the establishment of some kind of a council which will coordinate the problems of medical education, of medical licensure in a way that is satisfactory to the profession, to the universities and to the licensing bodies. That was one of the conclusions reached by the Commission on Medical Education, whose report was issued in 1932. Of course nothing has yet come of it but I think it is likely to develop just as there has been now rapidly developing a recognition of our responsibility in regard to the registration of specialists.

DR JAMES N. BAKER, Montgomery, Ala. The appeal of the National Board to me has been rather strong. I had the feeling that, since there remain only five states that do not give recognition to the diplomates of the National Board, we might interest ourselves in trying to get a full hundred per cent of our membership giving such recognition. It would be a stim-

lus to the medical schools to have their faculties sufficiently interested to try to have their students appear before the National Board. Many of these young men develop sort of an inferiority complex regarding their ability to match up to the test of the National Board. I think that would be helpful in eliminating such an inferiority complex. Licensing boards might think of the recent diplomate of the National Board in the light of the individual that they are examining rather than through reciprocity or individual endorsement. His expense in taking the National Board examination is around \$100. Then when he comes to locate in a state through reciprocity or individual endorsement, he is viewed not in the light of one to be examined by that board but in the light of reciprocity and there, again, he is taxed. I think we might give consideration to viewing diplomates of the National Board in that light rather than in the light of reciprocity and making them pay the reciprocity fee.

DR THOMAS J CROWE, Dallas, Texas. If the classification of medical colleges shall be put out jointly by the federation and by the Council on Medical Education and Hospitals and, if possible, by the National Board of Medical Examiners we can go into the courthouse and the legislature and defend it. But we cannot go into either place and defend it in my state if the classification is made by one single organization the American Medical Association. It will be a great lever in the hands of the prosecutor of medical violations if we can go in with that backing, in other words if the boards of medical examiners of the United States are the legal and authoritative body. I should say the federation should head the list. I want to say a word on the National Board. It is now in my opinion the highest medical credential in the world and I am strongly for it, and I hope some day I shall be able to tell you that Texas has adopted it.

DR WILLIAM R. DAVIDSON, Evansville, Ind. I would like to support Dr. Crowe in what he says about that matter of classification. The reason the Indiana board came here as a body was that very thing. We had a recent case in which a lawyer expected to go into court regarding the classification of the medical school. His contention was based on the fact that the board had not inspected it for several years and it might have improved. To get around that our whole board came up to pass on that inspection, do it ourselves, not accept the American Medical Association's classification or the Council on Medical Education and Hospitals' classification because as he said, that had no legal standing that was up to the board to determine. This federation is the only legal body entitled to issue licenses, and the more it can be brought into our own fold, I think the stronger we shall be in court.

DR J. EARL MCINTYRE, Lansing, Mich. I wish to commend Dr. Davidson and Dr. Crowe for their remarks because Michigan is in the same boat. Our attorney general's department has repeatedly ruled that we cannot accept the classification of an individual, nonofficial group such as the Council on Medical Education and Hospitals of the American Medical Association. Therefore we feel that this is a step in the right direction.

DR IRVIN D. METZGER, Pittsburgh. That was foreseen when our part of the work was authorized. It does give legal value to it and it can be used in the states in prosecutions to much better advantage than it could be if it were from an unauthorized or unauthorized body alone.

DR D. C. PATTERSON, Bridgeport, Conn. There was one point with regard to the two year medical schools and other schools. There is greatly emphasized the lack of clinical material. I do not see any reason why these men in the second year class should have to see sick people. They should be made to study normal healthy individuals thoroughly and there is no lack of material of that nature for them to study.

DR HAROLD RYANS, Albany, N. Y. I am delighted at the reaction of the representatives of the various boards with reference to the official status of the federation regarding the report of these inspections. I would therefore move that the secretary of the federation be instructed to advise the Council on Medical Education and Hospitals as to the attitude of the Federation of State Medical Boards with reference to the procedure to be followed in announcing the results of the inspection.

[The question was called for, put to a vote and carried.]

(To be continued)

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF INTEREST OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Bill Passed**—S. 89 to amend the law authorizing nonprofit corporations to operate hospital service plans, has passed the senate. Among other things, this bill proposes to eliminate the prohibition in the present law against furnishing to the purchaser of a certificate for group hospitalization any benefits and privileges named in his certificate until a period of sixty days after the purchase date has elapsed. The bill also proposes certain changes with respect to the reserve such corporations must maintain.

### ARIZONA

**State Medical Meeting at Nogales**—The Arizona State Medical Association will convene in annual session in Nogales, April 23-25, with headquarters at the Hotel Montezuma under the presidency of Dr. Charles R. K. Swetnam, Prescott. Wednesday evening, April 22, a public meeting on cancer will be held. Speakers will be Drs. Orville N. Meland, Los Angeles; Roderick D. Kennedy, Globe; Clarence E. Young, Prescott; Charles S. Kibler, Tucson, and E. Payne Palmer, Phoenix. Guest speakers on the scientific program will include the following physicians:

Fred D. Vickers, Deming, N. M., Leukemia with Report of a Case of Fifteen Years Standing.  
Jefferson R. Lemmon, Amarillo, Texas, Problem and Management of the Crying Child.  
James W. Hendrick, Amarillo, Surgical Management of Duodenal Ulcer.  
Robert C. Martin, San Francisco, New Developments in Pathology and Treatment of the Ear.  
Isaac H. Jones, Los Angeles, The Prescribing of Hearing Aids.  
Rea E. Ashley, San Francisco, Prevention of Sinus Disease.  
George N. Hosford, San Francisco, and Roderic P. O'Connor, San Francisco, O'Connor Operation for Heterophoria and Heterotropia.  
Earl D. McBride, Oklahoma City, Surgical Treatment of Arthritic Joints.  
George D. Mahon, Dallas, Texas, Complications Seen in Thyroid Disease.  
Frederick C. Cordes, San Francisco, Ocular Changes Resulting from Syphilis of the Central Nervous System and the Administration of Trypanamide.  
Harold F. Whalman, Los Angeles, Dinitrophenol Cataract.  
Richard O. Schofield, Boulder City, Nev., Fractures of the Os Calcis.

The governor, Dr. Benjamin B. Moeur, will address the Saturday morning session on 'The State, the Industrial Commission and the Medical Profession'. There will be two symposiums, one on tuberculosis, the other on medicine. Memorial services for the deceased members will also be held.

### ARKANSAS

**State Medical Meeting at Hot Springs**—The sixty-first annual session of the Arkansas Medical Society will be held at Hot Springs National Park, April 27-29, with headquarters at the Arhington Hotel and under the presidency of Dr. Melvin E. McCaskill, Little Rock. Speakers will include the following physicians:

Roscoe G. Leland, Chicago, Changes Confronting Modern Medicine.  
William D. Haggard, Nashville, Fundamentals of Gutter Surgery.  
J. Arthur Myers, Minneapolis, Using Our New Knowledge of Tuberculosis in Childhood.  
James J. Waring, Denver, Importance of Physical Examination in the Diagnosis of Pulmonary Disease.  
Horion R. Casparis, Nashville, Tenn., Feeding the Sick Infant.  
Edward Lee Dorsett, St. Louis, Internal Podalic Version.  
Meyer Wiener, St. Louis, Detachment of the Retina.  
Willis C. Campbell, Memphis, Physiologic Principles Applied to the Treatment of Fractures.

Monday evening, April 27, a public meeting will be addressed among others by Dr. Leland and Dr. Haggard on State Managed Medicine and What Price Health respectively. A memorial session will be held Tuesday. Arkansas physicians included on the general program are:

Je. e. D. Riley, State Sanatorium, Some Practical Thoughts and Suggestions to the General Practitioner on Tuberculosis.  
Forrest A. Corn, Jr., Lonoke, Diphtheria.  
Martin C. Hawkins, Jr., Searcy, Retroverted Uterus: What to Do About It.  
Delmas K. Kitchen, El Dorado, Postpartum Atony of the Uterus.  
Herbert Moulton, Fort Smith, Glaucoma.  
Frank Vinson, Little Rock, Vienna a Few Years Ago. A Medical Center.

Virgil L. Payne Pine Bluff, Results with Ionization Treatment in Nasal Allergy  
 Theron E. Fuller Texarkana, Blastomycosis of the Larynx Complicating Carcinoma  
 James A. Foltz Fort Smith The Rising Mortality in Appendicitis  
 Berry L. Moore El Dorado High Carbohydrate Diet in Diabetes  
 Darmon A. Rhinehart Little Rock X-Ray Treatment of Acute Infections  
 Francis J. Scully Hot Springs National Park Tonsillitis and Hyperthyroidism  
 Maurice F. Lautman Hot Springs National Park The Sedimentation Test in Chronic Arthritis Its Value as an Aid to Differential Diagnosis and Treatment  
 Robert A. Milliken Little Rock Low Back Pain  
 Joseph F. Shuffield Little Rock The Human Foot  
 Francis Walter Carruthers Little Rock Common Foot Complaints  
 Sam Phillips Little Rock Cyanosis in Infancy  
 Donald Smith Hope Agnesia of Abdominal Muscles in New Born Infant  
 Alan G. Cazort Little Rock Present Status of Vaccine and Serum Therapy

The program of one session Wednesday will be given by members of the staff of the Army and Navy General Hospital. Capt. Albert H. Robinson, "Chaulmoogra Oil in Treatment of Arthritis." Major William J. Carroll "Roentgenologic Aspects of Thoracic Tumors," and Major Chancey E. Dovel, "Treatment of Chronic Empyema." The Arkansas State Pediatric Association will hold its second annual meeting at the Arlington, April 27. Speakers will include Drs. Casparis on tuberculosis, Robert A. Strong, New Orleans, "Care of the New-Born for the First Ten Days," and E. C. Mitchell, Memphis, immunization problems. The woman's auxiliary to the state medical association will also be in session, April 27-29.

### CALIFORNIA

**Prevalence of Influenza**—The bulletin of the state department of health reports that about 12,000 cases of influenza were recorded in California during February. In some places school attendance was only 75 per cent of normal. A representative of the Rockefeller Institute for Medical Research, New York, made special studies, particularly in the San Joaquin Valley and the San Francisco Bay region obtaining material for laboratory studies now in progress at the institute. The epidemic was prevalent during the latter part of January and all of February, with the peak occurring at the end of January or during the first part of February.

**State Association News**—The supreme court refused March 29, to hear the appeal of the supervisors of Kern County who had been enjoined from admitting pay and part pay patients to county hospitals. This action sustains the injunction of the circuit court which was recently upheld by the court of appeals. Plans for the organization of a subsidiary corporation for malpractice insurance and indemnification or for group insurance with existing companies were reported on by a special committee at the council meeting April 10. A survey of tax supported county hospitals is being made by an association committee. Abuses will be demonstrated, administration policies advanced and the amount of free services rendered by physicians computed.

### FLORIDA

**State Meeting Aboard the S S Florida**—The sixty-third annual meeting of the Florida Medical Association will be held on the S S Florida April 27-29 on a cruise to Havana, under the presidency of Dr. Herbert L. Bryans, Pensacola. In Havana, entertainment has been planned including golf at the Havana Country Club and sightseeing trips. The scientific program will be presented by the following physicians:

Louis M. Orr Orlando Present Day Conceptions of the Management of Prostatic Obstruction  
 John C. Vinson Tampa Cautery in Acute Epididymitis and Orchitis  
 Louie M. Limbaugh Jacksonville Collapse Therapy of Pulmonary Tuberculosis  
 Kenneth A. Morris Jacksonville Surgical Treatment of Pulmonary Tuberculosis  
 Hubbard H. Gates Bradenton Sulphur the Forgotten Remedy  
 Ralph E. Russell Ocala Treatment of Eye Diseases by the General Practitioner  
 William C. Roberts Panama City Progress Toward Lessening Maternal Morbidity and Mortality  
 Paul B. Welch Miami Management of Peptic Ulcer  
 Samuel Marion Salley Miami The Systolic Murmur Its Interpretation  
 Joseph W. Taylor Tampa Role of Sinusitis in the Production of Cough  
 Harry Hamilton Cooke Miami Trigeminal Neuralgia  
 James G. Lively Jacksonville Brain Surgery and Epilepsy  
 Prescott LeBretton St. Petersburg The Value of Skeletal Traction Especially in Fractures About Joints

The seventeenth annual meeting of the Florida Railway Surgeons Association will also be held on this trip convening Monday morning. The first annual meeting of the Florida

Pediatric Society will be held Monday morning in the smoking room of the S S Florida. Speakers will include the following physicians:

Arthur H. Weiland Coral Gables Orthopedic Surgery in Childhood  
 William W. Anderson Atlanta Ga. Relationship of General Medicine to Pediatrics  
 Walter C. Jones Jr. Miami Relationship of General Surgery to Pediatrics  
 Thomas E. Buckman Jacksonville Blood Dyscrasias in Infancy and Childhood  
 Gilbert S. Osincup Orlando Respiratory Infections in Infancy and Childhood  
 William W. McKibben Miami Diseases of the New Born

The fifth annual meeting of the Florida Radiological Society will be held at the McAllister Hotel, Miami, April 26.

### ILLINOIS

**Tuberculosis Meeting**—The twenty-seventh annual meeting of the Illinois Tuberculosis Association was held at the Orlando Hotel, Decatur, April 6-7. Dr. William A. Hudson, chief, division of thoracic surgery, Grace Hospital, Detroit, conducted a clinic on intrapleural pneumolysis. The speakers on the program included:

Dr. David O. N. Lindberg Decatur Role of the Chest Roentgenogram in Tuberculosis  
 Dr. Robinson Bosworth Rockford Essential Considerations Affecting the Selection of Patients Who May Profit Most from Sanatorium Treatment and Primary Reasons for Eliminating Certain Groups from the Sanatorium  
 Dr. Arthur S. Webb, Wheaton, Basic Elements in Sanatorium Treatment  
 Dr. Herbert L. Pettitt Morrison Problems Facing the Physician Treating Tuberculosis in the Home  
 Dr. Irenaeus L. Foulton East St. Louis A Practical Approach to the Tuberculosis Problem in the Large Counties of Southern Illinois Which Have a Large Negro Population

At the annual banquet Tuesday evening, Dr. Gerald B. Webb, Colorado Springs, gave "An Outline of the History of Tuberculosis."

### Chicago

**The Pasteur Lecture**—Charles Judson Herrick, Sc.D., professor emeritus of neurology, University of Chicago will deliver the fourteenth Pasteur Lecture of the Institute of Medicine of Chicago Friday evening, April 24, in Thorne Hall on McKinlock Campus, Northwestern University. His subject will be "Neurobiological Foundations of Modern Humanism."

**Gehrmann Lectures**—Dr. Victor G. Heiser, formerly director of Far East for the International Health Board, Rockefeller Foundation will deliver the Gehrmann Lectures for 1935-1936 in the Medical and Dental Laboratory Building, 1853 West Polk Street April 29-30 and May 1. The titles of the lectures are "Coordination of Disease Control Throughout the World by the League of Nations," "International Research in Leprosy" and "Dietary Opportunities in Preventive Surgery."

**Department of Psychiatry Expanded**—As a part of the general reorganization of the department of psychiatry at Michael Reese Hospital, Dr. Martha Goldinger Wilson MacDonald has been appointed in charge of child psychiatry and Dr. Milton L. Miller, resident psychiatrist in charge of the inpatient service. Dr. MacDonald is a graduate of the University of Pittsburgh School of Medicine and has been associated with the Danvers State Hospital, Danvers, Mass., the Illinois Institute of Juvenile Research and the Payne-Whitney Psychiatric Clinic, New York. Dr. Miller graduated from Harvard Medical School. He served on the staff of the Enoch Sheppard-Pratt Hospital in Baltimore and, under a fellowship of the Rockefeller Foundation, studied one year at Queen Square Hospital, London, and one year at the Payne-Whitney Psychiatric Clinic, New York. Dr. Jacob Kasanin, formerly clinical director of Rhode Island State Hospital for Mental Diseases, Howard, R. I., was recently appointed director.

### IOWA

**Prevalence of Smallpox**—The state department of health announces that twenty-seven cases of smallpox were reported during the week ended March 21. Reported cases of this disease for the first three weeks of March are more than five times the number reported a year ago, and thus far in 1935 the number of reported cases of smallpox is over six times that for the same period in 1935.

**State Medical Meeting in Des Moines**—The eighty-fifth annual meeting of the Iowa State Medical Society will be held in Des Moines, April 29, 30 and May 1, with headquarters at the Hotel Savery and under the presidency of Dr. Thomas A. Burcham. A symposium on intracranial lesions will be held Wednesday morning with the following speakers:

Drs William E Ash, Council Bluffs, Olan R Hyndman, Iowa City, John D Camp, Rochester, Minn., and Cecil S O'Brien, Iowa City Thursday morning the program will be presented by the following physicians

Solon Marx White Minneapolis Essential Hypertension  
William Wayne Babcock Philadelphia Breast Tumors  
Arthur C Christie Washington D C, Modern Conception of Irradiation Therapy in Malignancy  
Samuel J Kopetsky New York Diseases of the Petrous Portion of the Temporal Bone from the Standpoint of the General Medical Man the Neurologist and the Otologist  
Philip C Jeans Iowa City Feeding Cases

Wednesday and Thursday afternoons will be devoted to sectional conferences, with Friday morning set apart for papers by the following

Dr Bahcock Anesthesia  
Dr White Paroxysmal Cardiology  
Dr Christie Medical Economics  
Dr Olin West Chicago Secretary and General Manager American Medical Association Medical Organization

The "medical minstrels of 1936" will present The Social Security Act" at the smoker Wednesday evening The annual banquet will be held Thursday evening with Dr James C Hill, Newton, as toastmaster Dr Burcham and Dr Prince E Sawyer, Sioux City, will deliver their addresses as president and president-elect of the society, respectively Most Rev Gerald T Bergan, bishop of Des Moines will also speak The State Society of Iowa Medical Women will hold its thirtieth annual meeting April 29, speakers will include Dr Florence Brown Sherbon Lawrence, Kan on 'The Woman Physician in a Changing World' The woman's auxiliary of the state society has also planned an elaborate program for its annual session at this time

## LOUISIANA

Health at New Orleans—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended April 4, indicate that the highest mortality rate (26.8) appears for New Orleans and the rate for the group of cities as a whole 13 The mortality rate for New Orleans for the corresponding period last year was 15.5 and for the group of cities 12 The annual rate for eighty-six cities for the fourteen weeks of 1935 was 13.7 as against a rate of 12.7 for the corresponding period last year Caution should be used in the interpretation of these weekly figures, as they fluctuate widely The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate

## MAINE

Pneumococcus Typing Stations Established—Seventeen stations for typing pneumococcus sputum have been established in Maine by the state bureau of health Persons unable to pay may obtain Felton's refined concentrated serum free at the station if the sputum appears to be positive for type I or type II pneumonia Persons able to pay may also purchase the serum from the typing station if their drug stores do not have a supply on hand or are unable to get a supply promptly Following a study by the bureau of health on the value of typing and treatment, a fund was granted by the governor and his executive council to institute this service

## MINNESOTA

Society News—At a meeting of the Hennepin County Medical Society April 8 in Minneapolis, Drs James S Reynolds and William P Sadler Jr, spoke The society was addressed April 1 by Drs Walter H Fink and Miland E Knapp—The Minneapolis Surgical Society was addressed April 2 by Drs Richard R Cranmer on 'Bilateral Transplantation of the Ureters into the Sigmoid for Exstrophy of the Bladder,' and Alfred W Adson, Rochester, 'Essential Hypertension—The Rationale of Surgical Treatment by Extensive Sympathectomy'

Hospital Conference—The thirteenth annual conference of the Minnesota Hospital Association will be held at the Hotel Lowry, St Paul, May 14-15 Speakers will include Drs Herbert A Burns, Ah Gwah-Ching, on 'The Control of Tuberculosis Among Nurses and Hospital Personnel,' Seymour R Lee, superintendent, Ancker Hospital, St Paul Relationship of the State Hospitals to the Private Hospitals' William H Hengstler, St Paul 'Medicolegal Aspects of Keeping Hospital Records' and George A Earl, St Paul Nursing Education from the Medical Point of View

## MISSOURI

Diphtheria Immunization Campaign—A campaign to immunize children against diphtheria will be conducted in Kansas City, April 20-25 This week has been set aside for attention to families of low income The health department will furnish alum precipitate toxoid without charge and asks that it be administered for a charge of not more than one dollar In cases in which this fee cannot be paid free immunization will be given at the Kansas City General Hospital From 1920 to 1923, when there were no immunizations, 723 cases of diphtheria were reported with an average of 56.5 deaths During 1934-1935 6,068 immunizations were carried out, 121 cases of diphtheria were reported with nine deaths

## NEW YORK

Medical Museum in Rochester—A medical unit in the Rochester Museum of Arts and Sciences is to be established under the auspices of the Rochester Academy of Medicine The new section will be operated as a teaching museum accessible to all citizens who have a legitimate interest in the historical, artistic or scientific aspects of medicine, according to the *New York State Journal of Medicine* Permanent exhibits will be built up but there will also be special and rotating exhibits on timely subjects

State Medical Meeting—The one hundred and thirtieth annual meeting of the Medical Society of the State of New York will be held at the Waldorf-Astoria, New York, April 27-29 The house of delegates will meet Monday, April 27 general sessions will be held Tuesday and Wednesday afternoons and section meetings Tuesday and Wednesday mornings Speakers at the general sessions will be

Lord Horder chief of medical service St Bartholomew's Hospital London

Dr James S McLester Birmingham Ala President American Medical Association Influence of the Present Day Depression on the Nutritive State of the American People

Dr William M James Panama R P Epidemiology Diagnosis and Treatment of Anemias

Dr Harrison S Martland Newark N J Teaching of Forensic Medicine

Dr Walter M Simpson Dayton Ohio Artificial Fever Therapy of Syphilis and Gonococcal Infections

Dr Urban Maes New Orleans The Place of Surgery in Treatment of Peptic Ulcer

Dr Fred W Rankin Lexington Ky Malignant Neoplasms of the Colon

Dr William G Exton New York Differential Diagnosis of Conditions Associated with Sugar Excretion

There will be symposiums on the nervous system in relation to automobile and industrial accidents arthritis, diseases of the liver gallbladder and pancreas, silicosis, industrial diseases and accidents to the hand Invited guests to address the sections include

Dr Walter Bauer Boston Classification and Differential Diagnosis of Joint Diseases

Dr Dean D Lewis Baltimore Surgical Lesions of the Pancreas

Dr Geza de Takats Chicago Surgical Aspects of Acute Peripheral Vascular Disease

Dr Harry Hudnall Ware Jr Richmond Va Full Term Extra Uterine Pregnancy

Dr Leonard G Rowntree Philadelphia Role of the Thymus Gland in Growth and Development

Dr Sanford R Gifford Chicago Ocular Therapeutics

Dr Nolan D C Lewis Washington D C Extraneural Pathology of Paranoia and Manic Depressive Psychoses

Dr Charles C Higgins Cleveland Factors Influencing the Formation and Dissolution of Renal Calculi and Their Application to the Prevention of Recurrent Renal Lithiasis

Dr David M Davis Philadelphia Rationale of Treatment in Urinary Infection

Dr Harry Hauser Cleveland (with Dr George T Pick New York) Roentgen Diagnosis of Malignant Tumors of the Stomach

Dr Thomas P Sprunt Baltimore Certain Aspects of Blood Flow

An open forum will be held Wednesday evening, April 29 in the ballroom of the Waldorf-Astoria at which the following speakers will discuss 'What the Community Should Know about the following subjects

Dr Albert A Epstein New York Diabetes

Dr George P Muller Philadelphia Appendicitis

Dr James S Greene New York Stuttering and Stammering

Dr Arthur J Bedell Albany Failing Eyesight

Dr Charles Gordon Heyd New York Gout

Dr Louis C Schroeder New York Infantile Paralysis

Dr A Raymond Dochez New York Common Colds

Dr Morris Fishbein Chicago Quacks and Quackery

At the annual banquet Tuesday evening guests of honor will be Lord Horder of London, Dr Willard C Rappleye dean Columbia University College of Physicians and Surgeons and William M Lewis LL D, president, Lafayette College Easton Pa These guests will speak and Dr Frederic E Sondern, retiring president of the society, will also make an address



## New York City

**Diploma Lost**—Dr David Hershkowitz has reported the loss of his diploma from the New York Homeopathic Medical College. He was graduated in 1921.

**Alumni Day at Long Island College**—The annual meeting of the Alumni Association of Long Island College of Medicine will be held at the college April 25. At a morning session Dr Adolph G De Sanctis, a graduate of 1914, will present a paper on "Appendicitis in Childhood," which will be discussed by Drs Thomas M Brennan and Carl Laws. At luncheon Dr William E Lippold, 1905, will be the speaker. The annual dinner will be held at the Knights of Columbus Club, Prospect Park West.

**Society News**—At a meeting of the Medical Society of the County of New York, March 23, speakers were Drs Lucy DuBois Porter Sutton, on "Diagnosis of Chorea and Its Relation to Rheumatic Fever", Irving R Roth, "Certain Aspects of Recurrent Affections in Juvenile Rheumatism," and Valentina P Wasson, "An Attempt at Immunization of Rheumatic Fever Children"—Dr Eugene R Marzullo and Frederick B Flinn, Ph.D. addressed the Medical Society of the County of Kings, March 17, on "Lead Poisoning" and "Arsenical Poisoning in the Industrial Field" respectively.—Dr Walter T Dannreuther gave an afternoon lecture before the Medical Society of the County of Queens, March 20, on "Clinical Manifestations of Extra-Uterine Pregnancy."

## NORTH CAROLINA

**The Negative Wins State Medicine Debate**—Negative teams were generally victorious in debates held throughout North Carolina March 27 on the question Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense, the *Raleigh News and Observer* reported March 28. According to this report, coaches and judges expressed the opinion that the question was "unusually one-sided."

## OHIO

**Typhoid Epidemic at Mansfield**—More than 100 cases of typhoid had been reported up to March 27 in an outbreak at Mansfield. At that time the source of infection had not been determined, more than 170 tests having been made of the city water without evidence of contamination. About 7,000 persons in the town had been immunized. The health officer, Dr Willard C Hanson, issued a warning against capsules that were being sold for immunization instead of inoculation, newspapers reported. Chlorination of the entire city water supply was begun March 20, only one section of the city previously had chlorinated water. Representatives of the state board of health were reported to have gone to the city March 23 to assist in the investigation.

**Alumni Meeting at Kansas City**—Medical alumni of Ohio State University will have a dinner meeting Wednesday evening, May 13, in Kansas City, during the annual session of the American Medical Association. The place will be announced later. Dr John H J Upham, Columbus, dean of the medical school, and Dr Jonathan Forman, Columbus, secretary of the medical alumni association will be present. John B Fullen, national alumni secretary, will also attend and will exhibit motion pictures of the university's 1935 football season. Those who plan to attend should notify Dr Arthur L Osborn, 600 Professional Building, Kansas City, Mo, who is in charge of local arrangements. Dr Henry W Lehrer, Sandusky, is president of the medical alumni.

## PENNSYLVANIA

**Society News**—Dr Zoe Allison Johnston, Pittsburgh, addressed the Fayette County Medical Society Uniontown, April 2 on "Indications for Use of Radium and X-Rays in the Treatment of Malignancy."

**Auxiliary Sponsors Lectures**—The Woman's Auxiliary of the Schuylkill County Medical Society conducted its first health institute April 14 in Pottsville. Speakers included Dr James Stratton Carpenter, Pottsville, on antepartum and maternal welfare. Harry Logan, D.D.S., Mt Carmel, facial deformities. Edwin B Twitmyer, Ph.D. professor of child psychology, University of Pennsylvania Philadelphia, freedom and discipline as factors in mental hygiene, Dr John A Sweeney, Philadelphia, tuberculosis, and Dr Peter B Mulligan Ashland, control of cancer. Mrs W Burrill Odenatt, Philadelphia state president of the auxiliary, was also a speaker.

## Philadelphia

**Orchestra Organized**—The Philadelphia County Medical Society Orchestra held its first rehearsal, March 6, under the direction of Mr Gordon Kahn, about forty musicians attended.

**Group Medical Service Ruled Illegal**—The state insurance commissioner has ruled that the organization headed by Dr Charles Dudley Saul, furnishing medical service to subscribers at \$2 a month, constitutes an insurance business. In order to continue, the commissioner said Dr Saul must organize an insurance company and modify his contracts to conform with insurance laws.

**Personal**—Dr Charles E G Shannon was elected president of the Alumni Association of the Jefferson Medical College, January 15.—George D Rosengarten, Ph.D., member of the Committee of Revision of the U S Pharmacopeia and former president of the American Chemical Society, died at his home in Philadelphia, February 24, aged 67. Dr Rosengarten was vice president of the Powers-Weightman, Rosengarten Company for many years, retiring when that firm merged with Merck and Company in 1927.—The staff of Memorial Hospital gave a reception, March 17, in honor of Dr James W McConnell, recently appointed professor of neurology at Temple University School of Medicine.

**Society News**—Dr Roger C Graves, Boston, among others addressed the Philadelphia Urological Society, March 23 on "Bladder Complications of Carcinoma of the Cervix"—The annual conversational lecture of the Pathological Society of Philadelphia was delivered at a joint meeting of the society and the Philadelphia Roentgen Ray Society, April 2, by Dr Antoine Lacassagne, assistant director of the Radium Institute, University of Paris, his subject was "A Hormonal Pathogenesis of Adenocarcinoma of the Breast"—Drs Orthello R Langworthy, Baltimore, and Harold G Wolff, New York, addressed the Philadelphia Neurological Society, March 27, on "A Clinical Study of the Control of the Bladder by the Central Nervous System" and "The Site of Action of Acetylcholine and Its Biologic Significance" respectively.—A symposium on arthritis was presented at the meeting of the Philadelphia County Medical Society April 8, by Drs Theodore F Bach, John Eiman, Charles W Scull and Ralph Pemberton.—Dr James B Murphy, New York, delivered the fifteenth Nathan Lewis Hatfield Lecture before the College of Physicians of Philadelphia, April 1, on "Etiology of Cancer Based on Present Knowledge."

## RHODE ISLAND

**Bills Introduced**—S 212 and H 857, to amend the workmen's compensation act, propose to raise to \$150 the liability of an employer for medical services, exclusive of hospital services, furnished a workman injured in the cause of his employment, and to raise the employer's liability to \$200 for medical services rendered to an employee who has received hospital treatment for more than fourteen days. The bills also propose to make certain enumerated occupational diseases compensable.

## SOUTH CAROLINA

**Bill Enacted**—S 1119 has been enacted, authorizing the city council of any municipal corporation of more than 2,000 and less than 10,000 inhabitants, which has acquired, constructed or caused to be constructed a hospital, to establish a city hospital commission to operate and manage the hospital.

**Bill Passed**—H 2050 has passed the house, proposing to create a health board of Charleston County, to consist of five members, four to be appointed by a majority of the Charleston County legislative delegation and one to be appointed by the city council of Charleston. The county health board is to be authorized to employ a county health officer for Charleston County, who is to employ, with the approval of the county health board, a chief sanitary inspector, sanitary inspectors and a county health nurse. The county health board is to be empowered to make reasonable rules and regulations for the promotion of health and the prevention of disease within the county.

## SOUTH DAKOTA

**Combined Meeting of Related Professions**—Six inter-related medical groups in South Dakota will hold their annual meetings in Sioux Falls during the week of May 4. This plan is the result of efforts of the medical economics committee of the South Dakota State Medical Association to develop interest in problems common to the professions and to effect organization of an interprofessional council. Each group appointed two



members to this council and all selected the same meeting place and time. Meetings will be conducted separately, except on Wednesday, May 6, when a combined meeting will be held with a program dealing with economic matters followed by a banquet in the evening. The organizations are in addition to the state medical association, the South Dakota State Dental Association, South Dakota State Veterinarians' Association, South Dakota State Nurses' Association, South Dakota State Hospital Association and South Dakota State Pharmaceutical Association.

### WISCONSIN

**Radio Station to Refuse "Patent Medicine" Advertising**—It is reported that, as a result of efforts of the Woman's Auxiliary of the Medical Society of Milwaukee County, Station WEMP, Milwaukee, has informed the society that objectionable products such as "patent medicines" will not be advertised over that station.

**Society News**—Speakers at a meeting of the Milwaukee Society of Clinical Surgery, March 24 were Drs Lewis J Pollock, Chicago, on "Diagnosis of Peripheral Nerve Injuries," Theodore H Burbach, Milwaukee, "Rectal Surgery," Loyal Davis, Chicago, "Surgical Treatment of Epileptiform Seizures," and Ernest V Smith, Fond du Lac, "Removal of a Large Dermoid Cyst from the Anterior Mediastinum." Among speakers at the winter meeting of the Ninth Councilor District Medical Society at Marshfield, February 20 were Drs Arthur J Patek, Milwaukee, on "Coronary Disease," Harry Culver, Chicago, "Borderline Problems in Diagnostic Urology," and Rudolph W Roethke, Milwaukee, "Toxemia of Pregnancy." Dr Oliver P Kimball, Cleveland addressed the Medical Society of Milwaukee County March 13, on "Twenty Years of Goiter Prevention" and Dr Arnold S Jackson, Madison chairman of the special committee on goiter, State Medical Society of Wisconsin, on "The State Program as It Relates to Goiter Prevention." Dr William Walter Wasson, Denver addressed the Milwaukee Roentgen Ray Society February 15, on "Differential Diagnosis Between Pulmonary Tuberculosis and Nontuberculous Disease of the Lungs."

### GENERAL

**Examinations in Urology**—The American Board of Urology, Inc., announces that examinations for its certificate will be held in Boston, May 22-24. Examinations will also be held in Kansas City, Mo., May 8-10, preceding the meeting of the American Medical Association.

**News of Meningitis Epidemics**—Public gatherings were forbidden in Covington, Ky., by an order of the city board of health March 25 after three cases of meningitis had appeared in Kenton County. Pike County in eastern Kentucky was placed under a ban March 21, when three new cases appeared in Pikeville, making the total in the county eight. The state board of health reported that 182 cases had been reported in the present outbreak, most of them in the southeastern counties. There have been about fifty deaths.—Two deaths from meningitis have been reported among 1280 soldiers from the transport ship *Republic* now under quarantine at Fort Clayton, Canal Zone, according to newspaper accounts March 29.—A Civilian Conservation Corps camp at Tampa, Fla., was placed under quarantine March 18, when a member of the corps was found to have meningitis.—A Negro high school in East St. Louis, Ill., was ordered closed March 21 after the death of a student from meningitis; three other recent deaths were believed to have resulted from the disease.

**Medical Bills in Congress**—*Change in Status* H R 8874 has been reported to the House providing that for the purposes of promotion there shall be credited to officers of the Medical Corps all active service as officers of the Medical Reserve Corps rendered by them between April 23 1908 and April 6 1917. *Bills Introduced* H Res 481 introduced by Representative Daly, Pennsylvania, proposes to request the Administrator of Veterans' Affairs to submit a report to the House of Representatives respecting the naval hospital at Philadelphia, setting forth the facilities at the hospital the extent of its use by veterans the needs for additional facilities for veterans at the hospital the number of veterans who applied for hospitalization during the past year and certain other facts. A similar resolution H Res 432 proposing to request the Secretary of the Navy and the Administrator of Veterans' Affairs to submit the report was reported to the House by the Committee on Naval Affairs with recommendation that the resolution not pass. H J Res 561 introduced by Representative Mapes, Michigan and referred to the Committee on Rules proposes to create a Committee on the Reorganization of the Executive Branch of the Government to consist of

fifteen members five to be appointed by the President of the United States, five Senators to be appointed by the President of the Senate, and five members of the House of Representatives to be appointed by the Speaker of the House. H R 12169, introduced by Representative Hoepfel, California, proposes to increase the pensions payable to totally disabled veterans of the Spanish-American War the Philippine Insurrection and the China relief expedition. H R 12172, introduced by Representative Risk, Rhode Island proposes to authorize an appropriation of \$1200,000 to erect in Rhode Island, a veterans hospital for the diagnosis care and treatment of general medical and surgical disabilities.

### CANADA

**Balfour Lecture**—Dr Melvin S Henderson, professor of orthopedic surgery, Mayo Foundation, Rochester, Minn., delivered the tenth annual Donald C Balfour Lectureship in Surgery at the University of Toronto April 6. Dr Henderson's subject was "Orthopedic Surgery: A Historical Review."

**Health Insurance Bill Passed**—The legislature of British Columbia passed a health insurance bill April 1 by a vote of 29 to 14. Employees will pay 2 per cent of their wages but not more than 70 cents per week. Employers will pay 1 per cent but not more than 35 cents per week of the employees' wages. The government will contribute \$50,000 to set up an organization under which the scheme will be operated, a commission to be composed of a chairman, a vice chairman and two or three members. Their maximum remuneration will be respectively \$7,500, \$6,000 and \$2,500 a year. The commission will be assisted by a technical advisory board of six members including the provincial health officer, the chairman of the workmen's compensation board, one physician, a representative of a women's organization and two others whom it may be deemed advisable to appoint.

## Government Services

### Dr Parran Named Surgeon General

Dr Thomas H Parran, Jr. since 1930 health commissioner of the state of New York, was appointed surgeon general of the U S Public Health Service March 27. Dr Parran was nominated for the position March 23 and was sworn into office April 6. He succeeds Dr Hugh S. Cumming who retired February 1 after sixteen years service. Dr Parran is 43 years of age. He graduated from Georgetown University School of Medicine in 1915. He was commissioned as assistant surgeon in the U S Public Health Service in 1917. He became medical officer in charge of the Muscle Shoals Sanitary District and chief medical officer at the government nitrate plant in 1918. He was appointed executive officer of the medical department of the War Risk Insurance Bureau in 1919 and in November of that year was placed in charge of the Tri State Sanitary District comprising the lead and zinc mining areas of Kansas, Missouri and Oklahoma. From 1921 to 1923 he served as state director of rural sanitation in Missouri and subsequently was assigned to the Illinois State Department of Health as director of county health work. In September 1926 he was appointed assistant surgeon general and given administrative charge of all venereal disease control activities of the U S Public Health Service. Dr Parran is president elect of the American Public Health Association. In 1935 he was chairman of the American delegation to the International Congress of Dermatology and Syphilis in Budapest. He is the sixth surgeon general of the U S Public Health Service and the first who has served as state health officer prior to becoming surgeon general.

### CORRECTIONS

**Northwoods Sanatorium**—In the *Tuberculosis* Number of THE JOURNAL Dec 7 1935 page 1905 it should have been indicated that Northwoods Sanatorium at Saranac Lake, N. Y. is fully equipped for roentgenographic, fluoroscopic and pathological laboratory services.

**Typhoid Transmission by Rectum**—THE JOURNAL April 4 page 1224 in a Query and Minor Note indicated that there did not appear to be any record of transmission of typhoid by way of the rectum through the use of rectal tubes contaminated with typhoid bacilli. More recently a reference has been found to a series of cases reported by Dr C R Herve of Oswego, N. Y. in the *American Journal of Public Health* of February 1929, page 166.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 10, 1936

#### Bill to Restrict the Advertisement of Nostrums and Appliances

A bill to check the glaring evil of the more or less fraudulent widely advertised nostrums and surgical appliances has received a first reading in the house of commons. The bill has received the support of the British Medical Association, the Society of Health Officers, the Pharmaceutical Society, newspaper and advertising associations and bodies representing the drug trade, and the manufacturers of surgical instruments. The bill makes it illegal to hold out as effective any medicine or appliance for the cure or prevention of Bright's disease, cancer, consumption, diabetes, epilepsy, fits, locomotor ataxia, lupus or paralysis, also for the cure of amenorrhea, hernia, blindness, any structural or organic ailment of the auditory system habits associated with sexual excess or indulgence, and any ailment associated with those habits, procuring miscarriage, and promotion of sexual virility in men or sexual desire in women. It will also be illegal to publish a document containing an intimation that any person is prepared to treat by correspondence any of these. So far the prohibition is quite general. But the following exceptions are made: "Holding out" will be permitted in the following circumstances: (1) by a physician or dentist in the exercise of his profession; (2) if it is directed to physicians, dentists, nurses, pharmacists, hospitals and persons engaged in the supply of medicines or appliances; (3) in technical publications; (4) in connection with patent applications; (5) to a patient for whom the medicine or appliance has been ordered by a physician or dentist. Certain advertisements of articles of diet which would otherwise be illegal will be permitted. But the claim must be no more than that as an article of diet the article is effective in preventing or in exercising a salutary influence (but not curing) the ailments mentioned.

Invitations to correspond with a view to diagnosis or treatment may not be issued by the proprietor or distributor of a medicine. There is a saving clause for a person who has a religious belief in the effectiveness of some means other than medicines or appliances. He may hold out this means as effective, but for this defense he must show the court that he is acting in accordance with the principle and practice of a religious body comprising a substantial number of persons who hold that belief. This exemption is designed to cover "faith healing" and treatment by prayer.

#### English Universities Decline to Attend the Celebrations of the University of Heidelberg

The British universities and learned societies have received invitations to attend the celebration of the University of Heidelberg and to present congratulations. The result is a long correspondence in the *Times* which was begun by the bishop of Durham. He pointed out that the supreme and universal claim of truth and the indispensability of liberty in its pursuit are postulates which govern the practice of civilized universities and asked whether these postulates are accepted by Heidelberg. The British universities are the vigilant guardians of intellectual freedom. The presentation of congratulations by their representatives at the present time would be understood as a deliberate condonation of the intolerance that has emptied the German universities of many of their most eminent teachers. From Heidelberg alone forty have been expelled, including Prof. Hans Sachs, the eminent serologist. In the correspondence that followed, the views of the bishop were endorsed by leading men. Sir Gowland Hopkins, professor of biochemistry at Cambridge,

wrote that three years ago all learned institutions in this country would have rejoiced in proclaiming the record of Heidelberg. But they were now asked to give the appearance of approval to the disastrous changes that have done so much to destroy academic freedom. The unusual choice of a term which corresponded to a half centenary was significant. Sir Ernest Graham Little (dermatologist and member of parliament for London University) said that "the open door" which was distinctive of London University was flouted and therefore it was unthinkable that a representative would be sent.

In the course of the correspondence it was pointed out that 1,300 professors and lecturers have been expelled from the German universities as a result of racial, religious or political persecution. Of these, 700 have left Germany and 600 have been placed in permanent or temporary posts where they can continue their work, thanks to an extraordinary manifestation of academic solidarity. The Academic Assistance Council of England has placed 200 in the British Empire. It would be strange if those who in the cause of academic freedom have come to the aid of these exiles of persecution should join in any congratulations, especially as the celebrations at an unusual time seem to be a political move—the thinly disguised aim to suggest the approval by the outer world of the Nazi rule. The defense was made that the persecution is not the work of the university but is imposed on it by the government. To this the answer has been made that under these circumstances the proper thing to do is to send Heidelberg a letter of condolence.

So far the official decisions of three universities are announced. The senate of the University of Birmingham has unanimously declined the invitation of Heidelberg University. The vice-chancellor of the University of Cambridge has informed the rector of Heidelberg that the council of the senate regrets that it is not able to propose to the university the acceptance of the invitation to participate in the celebration and has conveyed to him the council's sense of the eminent services which Heidelberg University has rendered to science and letters in the course of its long history. The University of Oxford has also declined to send a representative but will present an address in Latin.

#### Kept Alive for Four Years by Artificial Respiration

A man has died at Chiddingfold, Sussex, who was kept alive for four years by artificial respiration. In 1931 he found that he had to help his respiration by pressing on his chest. His trouble so increased that in June 1932 artificial respiration had to be performed day and night by relays of relatives and friends. In September 1933 Sir William Bragg, the physicist, who was a friend of the family, devised an apparatus in which two football bladders were connected by a wide rubber tube. One was bandaged tightly to the chest and the other was placed between two hinged boards, so that it could be worked by the feet like a bellows. This worked well. Later, at the request of Sir William Bragg, a hydraulic apparatus, to be worked off the water supply, was designed by a London scientific instrument maker. This was used up to the time of death. (THE JOURNAL, May 26, 1934, p. 1766)

#### Damages for Injuring the Sciatic Nerve

An appeal was made to the Judicial Committee of the Privy Council against a judgment of the Supreme Court of Trinidad awarding damages of \$4,300 to a man for the negligent treatment of a physician. It was claimed that the latter unskillfully treated him for malaria by inserting a hypodermic needle into the sciatic nerve when injecting quinine into the buttock or alternatively, by injecting so near the sciatic nerve as to injure it. The patient alleged that as soon as he got off the operating table he walked with a dropped right foot as a result of the injection and that the disability still continued (over three years later). In delivering judgment Lord Alness said that the trial

question concerned where the injection was made. Admittedly there was an area in the buttock within which such an injection might be safely administered. When the injection was administered to the respondent he felt a tingling sensation but nothing which he described as pain. Foot drop immediately followed. It was a fair inference, as the trial judge said, that the injection contributed to, if it did not cause, the foot drop. The appellant's theory, on the other hand, was that the respondent was suffering before the injection from latent alcoholic neuritis and that the alcoholic toxins in his system were lit up and precipitated by the shock of the injection. This theory was supported by three physicians, but one of them never saw the respondent and the other two saw him for the first time a week before the trial. The skill and experience of the appellant was certified by the trial judge. But one knew from experience in life that "familiarity breeds contempt" and that an ordinary practice was sometimes lacking in the constant care which the circumstances demanded. Moreover the respondent's theory offered a simple and convincing explanation of his plight, while the appellant's was speculative and difficult. The appellant did not treat the respondent for alcoholic neuritis, though he was addicted to spasmodic "sprees." None of the physicians who gave evidence for the appellant had experience of latent alcoholic neuritis precipitated by shock, and such a happening was admittedly rare. There was no evidence that the respondent suffered from latent alcoholic neuritis. The appeal was dismissed.

#### PARIS

(From Our Regular Correspondent)

March 22, 1936

#### Acute Nephritis Following Injections of Staphylococcus Anatoxin

At the February 28 meeting of the Societe medicale des hopitaux, Tzanck reported excellent results following the use of Ramon's staphylococcus anatoxin in the treatment of superficial infections, such as furuncles, due to *Staphylococcus aureus*. At the same meeting a death due to hypersensitization to the anatoxin was reported by Duvoir. At the March 13 meeting Tzanck reported a case in which an acute nephritis appeared immediately after four injections of anatoxin had been given. A woman, aged 43, had suffered from furunculosis during the preceding three years. An intradermoreaction with the anatoxin presented a positive reaction of moderate degree. Four injections the first of 0.25 cc and the others of 0.5 cc, were given at weekly intervals. The furuncles disappeared and the patient was considered as being cured after the fourth injection. Fifteen days later the patient complained of edema around both ankles and a recurrence of furuncles in the region of the neck. Two days later a generalized edema appeared. The blood urea was 30 mg per hundred cubic centimeters and the urine contained hyaline casts and much albumin. Following the use of a salt-free diet the edema disappeared and the albumin was greatly decreased. There was a history of the presence of albuminuria during two pregnancies but no further evidence of renal disease for ten years prior to the use of the anatoxin.

In all probability, as Ramon Debre and their co-workers have pointed out, a specific allergy existed toward the staphylococcus toxin as the result of the chronic furunculosis. Tzanck has observed in ninety patients treated with the anatoxin that the reactions are more marked when the infection is of long duration. The reactions therefore are a question of individual tolerance. He believed that the anatoxin should be used only in cases of furunculosis that are very resistant to other methods of treatment and in axillary adenitis, sycoes and carbuncles. One ought to watch for reactions in patients who have had urticaria, in patients with asthma and in those who have had evidences of a nephritis at some preceding period.

#### Osteomyelitis of Jaw Treated with Staphylococcus Anatoxin

At the March 13 meeting a case of acute osteomyelitis of the upper jaw treated by operation and the anatoxin was reported by Bloch and his associates. The child was 7 months of age and presented on admission the clinical signs of a severe septicemia accompanied by local evidence of a maxillary sinusitis. The blood culture was positive for *Staphylococcus aureus*. The same organism was found in the pus of the infected sinus. The day following the operation 0.2 cc of the anatoxin was given and a second dose five days later. Immediately after the latter, the infant's general condition improved rapidly and the blood culture was negative. Recovery was uneventful. A total of 2.85 cc of the anatoxin was injected and one was able to note a progressive increase in the anitoxin content of the blood. The mortality of such cases in the past has varied from 30 to 50 per cent.

#### Study of Postoperative Pulmonary Complications

The pathogenesis of postoperative pulmonary complications is still being discussed by Professor Duval, surgeon, in collaboration with Professor Binet, physiologist, who submitted their first report at the February 12 meeting of the Academie de chirurgie. The working hypothesis employed by these investigators was that postoperative pulmonary complications were due to the toxic effects of polypeptides having their origin in the field of operation. The experiments were divided into two series, in the first of which dogs were sensitized as a preliminary measure and in the second of which the dogs were not subjected to any such preparation. The sensitizing injections were given subcutaneously and the anaphylactic injections (secondary in group 1 and primary in group 2) were given intravenously. The polypeptides were obtained by the action of phosphotungstic acid on finely divided dog's muscle after precipitation of the peptones with trichloroacetic acid. To exclude agonal pulmonary lesions and those dependent on the method of killing the animals, this was carried out by venesection and the lungs were removed by thoracotomy while the animals were still breathing. In the first group (preliminary sensitization), an injection of 0.1 Gm of polypeptides per kilogram was given three weeks before then the animal was anesthetized with chloralose and an intravenous injection of the same dose given.

The microscopic examination of the lungs revealed pulmonary lesions of two kinds: (a) apoplexy and infarction without vascular occlusion and (b) typical pulmonary atelectasis (collapse of the lung). The lung appeared to be the only organ that was involved. This can be explained by the fact that the pulmonary circulation is the first to arrest the polypeptides and seems to be particularly sensitive to them, a local state of allergy.

Although these experiments will not explain all pulmonary complications following operation, it is evident that these are not all due to the anesthetic or to an embolic process. There are two types of lesions which follow operations in an aseptic field and under conditions of rigid asepsis, even when no general anesthetic is given. These two types are (a) the infarct and (b) the collapse type. In the former, the surgeon is too apt to accept an embolic process as an explanation, even when no source of an embolism can be found.

Duval and Binet are of the opinion that these can be best understood as of anaphylactic origin. The same is true of the atelectatic (collapse) form of pulmonary complication. Intoxication by the polypeptides of autogenous origin which are a sequel of every operation can provoke the two types of pulmonary lesions, infarct and collapse.

Gregoire, in the discussion, stated that the experiments reported by Duval and Binet rendered plausible the view that

the lesion which is termed postoperative bronchopneumonia is probably an infarct due to the migration of polypeptides from the field of operation. Gregoire had obtained experimentally with the toxin of the bacillus of gas gangrene the same experimental results (intestinal and pulmonary infarcts) as he had formerly obtained with polypeptides.

#### Physician Killed by Brother of Patient

A surgeon, Dr. Taubmann of Paris, has just shared the unfortunate lot of others like Professor Pozzi and Dr. Guinard, who were killed by patients or by relatives of the latter. Dr. Taubmann had earned the respect of his colleagues and the gratitude of a large number of patients both rich and poor. He had advised that an operation be performed. The patient, a young man, died on the table. His brother overheard a conversation during which some members of the hospital personnel criticized both the manner in which the operation was performed and the judgment of the surgeon. Without stopping to consider that such remarks were not justified, the brother called on Dr. Taubmann, whom he accused of causing his brother's death, and shot him. The medical societies will take part in the prosecution of the murderer and try to show that all reasonable skill and care were employed in the diagnosis and treatment of the case.

The lesson to be learned from the ending of what promised to be a brilliant career is that members of a hospital organization, whether associates, interns or nurses, should be most guarded in making any remarks so that they can be transmitted to relatives who attempt to judge a physician's or surgeon's acts without calm consideration of the fact that both conscience and experience have guided every step in the treatment.

#### BERLIN

(From Our Regular Correspondent)

Feb. 22, 1936

#### Research on the Heredity of Inmates of Institutions

For the last year H. F. Hoffmann, professor in ordinary of psychiatry at Giessen, has pursued research studies on the heredity of some 600 juvenile delinquents of his own district (Giessen). Data concerning these delinquents cover the period from the enactment of the juvenile reform school law in 1887 to 1934. Ten thousand relatives of these juveniles have thus far been genealogically established. These data are of particular importance since the vast majority of former delinquents have today grown children of their own. (Fürsorge-Zoglingen are juvenile offenders, committed to public industrial schools in the hope that their behavior may improve under the favorable influences of such surroundings.) A study of the descendants of eighty such former delinquents has yielded accurate but as yet incomplete data. This progeny present for the most part extreme types of asocial and antisocial behavior: a minority, after temporary lapses have become socially useful and fit. One hundred and eleven juvenile delinquents of more recent times were direct descendants of the eighty original offenders. In many instances all the children of the probationer had been committed to reform schools. From the existing genealogical data there may be perceived among the probationers a growing tendency to contract marriage or illicit relations with partners of low grade type. This trend is the more prevalent in families showing accumulated cases of juvenile delinquency. Thus throughout the group studied an interlocking relationship may be recognized of socially inferior families which are distinguished in most cases by the large number of children. As might have been expected, Hoffmann found among the offspring of probationers and low grade partners numerous cases of serious asocial and antisocial behavior. Many of these descendants had criminal records. The "biologic-partner law" formulated by Stumpf in connection with similar material can be

verified throughout. The rule operates in reverse for those probationers whose offenses have been less serious and for whom favorable prognoses of return to social behavior have been made. This class of reformed inmates shows in the majority of cases an inclination to contract marriage with socially worthy partners. Their family histories too present little or no hereditary taint of natural inferiority or delinquency. The descendants of such probationers almost always show fairly stable characters and incontestable social adaptability. The present data are as yet incomplete. So far as can be seen at present, the social prognosis for a human being as well as the choice of a marriage partner stand in direct proportion to the incidence of serious character defects in his immediate family circle. Those probationers of markedly inferior stamp tend to mate with similar partners and the children of such unions tend to develop a manner of life resembling that of the parents. The same holds true, but in reverse, for the milder type delinquents. For incontestable calculation the data now available must certainly be augmented.

#### Old and New Problems in Diphtheria

The meeting of the Berlin Pediatric Society (an organization the foundation of which was recently reported) was opened with a paper by Professor Optiz, director of a children's hospital in Berlin. According to statistics for the German reich, covering the last ten years, Germany is at present riding the crest of a diphtheria wave (a fact stated in several previous letters). As the result of numerous observations it may be inferred that climatic and racial factors play no part in the situation. The incidence has shifted from infancy toward school age. The clinical picture has been modified by the almost complete disappearance of croup on the one hand and by the more frequent appearance of different and more severe types of illness on the other. Toxic diphtheria has increased in a similar manner both in Europe and in North America. The more severe form the disease takes the more severe its crippling effects. These appear in 13 per cent of mild, in 20 per cent of moderately severe and in 62.9 per cent of severe cases. Among the causes of the change in the pathologic characteristics of diphtheria cases may be mentioned the improvement in general hygienic conditions and, as an obvious factor in the disappearance of croup, more suitable nutriment for children (avoidance of overfeeding with milk). Why toxic diphtheria should be on the increase is not well understood. In many cases the initial stages of the disease are atypical, and the first important hours go by without a diagnosis being established, serotherapy is then attempted but it comes too late to be of any benefit. Constitutional predisposition to diphtheria has not been proved. Idiosyncrasies of the causative agents may possibly play a part in the genesis of the disease. The so-called grave (gravis) forms seem to preponderate in cases of toxic diphtheria. When in severe cases the disease is toxic from the beginning an unusually rapid absorption of poison or some other toxic acidity in the somatic cells must be thought of. Finally let it be pointed out that, according to the modern view, diphtheria may be reckoned as a state of general illness wherein the tonsillar changes are only secondary phenomena conditioned by the elimination of bacilli.

#### Financial Aid for Impoverished Cancer Patients

More and more frequently one hears of steps being taken to facilitate the carrying out of therapeutic measures in cancer. Recently the Anticancer Federation of the Province of Hanover decided to further the campaign against cancer by extending financial assistance to impoverished and uninsured women. The nature of the assistance is as follows: Bed and care in a qualified institution is underwritten by the organization; the cost not to exceed 150 reichsmarks per diem. It is stipulated that the beneficiaries of this subsidy shall be women especially

mothers, afflicted with mammary or abdominal cancer, whose sickness insurance (if they carry any) would not cover the entire cost. Further, the institution furnishing the treatment must assume one third of the daily cost of maintenance. Moreover, it has been possible for the organization, by the purchase of its own radium and by supplies lent it free of charge to effect a reduction of 50 per cent in the cost of radiotherapy for the sickness insurance patients and for those less well off.

## ITALY

(From Our Regular Correspondent)

Feb 15 1936

### Food Problems in Italy

A committee appointed for studying some of the feeding problems in Italy came to the conclusion that cereals are the most commonly used foods among Italians. Because certain nutritional factors are either insufficient or absent in cereals the diet should have some additional foods. The following criteria are advisable in buying food for the family to spend from 30 to 35 per cent of the allowance for cereals and vegetables, from 25 to 30 per cent for meat milk and eggs, from 7 to 10 per cent for sauces and condiments and from 10 to 20 per cent for fruits and potatoes.

### Malaria in Nurslings

Dr Gioseffi, in a recent lecture, spoke on malaria in nurslings in reference to an epidemic of benign malaria which he treated several years ago and which included about 944 cases of primaveral malaria of the tertian type, five cases of the quartan type and nineteen cases of the estivo autumnal type. Most of the patients were infants from 6 months to 1 year of age. In many cases the symptoms were atypical. Chills were replaced by coldness of the hands, feet and point of the nose and cyanosis of the lips. There was no fever, sweats were absent or localized to some parts of the body and the spleen did not increase in size. Many infants showed nutritional disturbances (low weight) and paleness of the skin and mucous membranes instead of the specific malarial symptoms. As paleness may be due to improper feeding, existence of a previous disease or congenital syphilis, it is important to consider the size of the spleen in evaluating the symptom. Treatment consisted in the administration of quinine tannate in chocolate drops or as an emulsion in milk. The speaker made a more detailed study of the disease in thirty seven infants of the group. *Plasmodium vivax* was found in the blood of all infants except in two cases in which parasites of the quartan type were found and one case in which parasites of the estivo-autumnal type were found. The spleen could be felt beyond the ribs from the beginning of the disease in 46 per cent of the cases. In the remaining infants splenomegaly made its appearance later, when the infants reached about 1 year of age. The repeated examination of the blood of all infants in the group for several months after discontinuation of the treatment was negative for malarial parasites. Nine infants died (24.3 per cent) from other causes than malaria at a time when malarial parasites were no longer present in the blood as proved by repeated examinations. Malarial parasites were no longer present either in the blood of eighteen infants in the remaining group or twenty-five who are living and who were frequently seen for three years after discontinuation of the treatment. No recurrences happened in infants of this group. Recurrences took place in the rest of the cases owing either to lack of cooperation of the mothers who failed in giving their babies quinine for as long as the physician advised or to a new contagion from domestic malarial foci. The protection of babies by covering their cradles with netting gave satisfactory results in preventing the contagion.

### Italian Surgeons in International Congress of Surgery

Some Italian surgeons read papers at the International Congress of Surgery, recently held in Cairo. Professor Donati, clinical surgeon of the University of Milan, spoke on surgery of the parathyroids. He emphasized the importance of the parathyroids in the metabolisms of calcium, phosphorus and magnesium on the one hand, and of the development of modern knowledge on phosphatases, parathyroid extract and vitamin D, on the other. With this knowledge the syndromes of hyperparathyroidism and dysfunction of the parathyroids have been discovered. Hyperplasia of the parathyroids, especially focal hyperplastic adenoma of Churchill's type which the speaker names *parastruma*, is a condition in which surgical treatment is indicated. Operation is rarely indicated in hypoparathyroidism because of the inconstancy of the results from the implantation of parathyroid grafts. Hyperparathyroid syndromes include not only those syndromes of the group of Recklinghausen's osteosis which represent an advanced stage of the disease but also hyperparathyroidism with either renal or digestive disturbances which is entirely independent of osteoporosis. The diagnosis of hyperparathyroidism can be made only by study of the mineral metabolism of the patient. Professor Donati said that there are certain cases of *ostitis deformans* (Paget's disease) in which the biochemical disequilibrium shown by the patient originates in changes in the parathyroid functions. The speaker's opinion on the importance of parathyroidectomy in chronic arthropathies, scleroderma, arteritis and angiospastic syndromes was reserved. He concluded that the modern work through which the syndromes of hyperparathyroidism have been known have marked at the same time the limitations of surgical treatment. Satisfactory results from ablation of the parathyroids can be expected only in cases of hyperparathyroid hyperplasia or adenoma.

Professor Chiasseroni of Rome spoke on surgery of the lumbar sympathetic. He prefers operations on the central sympathetic rather than periarterial sympathectomy. He pointed out the importance of the spastic factor in the development of disturbances of the peripheral circulation and the necessity of evaluating the efficiency of the collateral circulation. He does not favor arteriography as a diagnostic method. As to the operation he prefers ganglionectomy by the paraperitoneal route. His experience includes fifty-two ganglionectomies with six deaths. None of the patients on whom he has operated during the last two years have died. The operation was performed in thirty-five patients with grave disturbances of circulation of the extremities caused by thromboangitis or arteriosclerotic thrombosis. The speaker followed up thirty-one of these patients and found that nineteen are still cured from three to five years after the operation, four have experienced great improvement and in four the improvement was only fair and they had then a secondary amputation. Four of the six deaths corresponded to this group.

### Personal Items

Prof Luigi D'Amato, instructor in pathology in the University of Naples, has been appointed professor of clinical medicine in the university. Some of his important contributions to medicine are on disturbances of the nitrogen and fat metabolism in diabetes mellitus, changes of the pancreas in cirrhosis of the liver, the role of chronic toxic conditions in pathogenesis of atheromatous degeneration and hemoclastic reaction for the diagnosis of syphilis, tuberculosis and some other infections, the diagnostic significance of the transmission of the laryngo-tracheal murmur audible at the clavicle as a sign of presence of diseases of the mediastinum and the paradoxical phenomenon of the displacement of vertebral dulness in pleural effusion.

Prof Leonardo Diminich, instructor in clinical surgery in the University of Perugia, has been appointed professor of surgery in the University of Naples. Some of his important

contributions to medicine are on renal functions after nephrectomy and in certain diseases, plastic surgery of the ureter, cysts of the kidney, surgery of the urinary tract, changes of the liver parenchyma in acute cholecystitis, choleperitoneum, and pathology of the heart and the blood vessels. He also made important contributions to war surgery during 1915 and 1916.

## RIO DE JANEIRO

(From Our Regular Correspondent)

Feb 15, 1936

### Climate and the Treatment of Pulmonary Tuberculosis

Dr Aloysio de Paula, in a recent lecture before the Faculty of Medicine of Rio de Janeiro, said that the influence of climate on the evolution of pulmonary tuberculosis has been recognized for a long time. It was believed at first that the climate favorable for the evolution of tuberculosis was that of the coasts. Lately it has been discovered that simply a change of climate, such as that experienced in cold countries, produces a beneficial and stimulative effect on the inhabitants as well as a favorable effect on pulmonary tuberculosis. Climates have been divided into two large groups: (1) stimulative climates, among which one may consider those of high altitudes and of cold countries, in which climatic changes of seasons are marked, and (2) even climates in which the climatic variations are slight. Favorable results can be obtained from an efficient treatment in pulmonary tuberculosis in any good climate. The influence that climate has on the evolution of pulmonary tuberculosis may be explained by either a general action on the organism or by a local action on the tuberculous lesions. When a tuberculous patient first reaches a high altitude he has frequently an initial aggravation which represents a focal reaction. Amrein compares this reaction to a tuberculin reaction. The climatic shock may be either useful or harmful to the tuberculous lesion. It is possible that intense climatic variations may produce a local irritation in the tuberculous foci and that the reaction may favor the evolution of certain types of pulmonary tuberculosis. The author concluded by saying that climate is a secondary factor in the treatment of pulmonary tuberculosis but may possibly be the determining factor in the cure of the patient. In Rio de Janeiro the proper treatment of the disease has resulted in cures as good as those reported from the best climatic stations in the country. The speaker advised a careful study of the different climates in Brazil in order to establish their technical, social and psychologic indications for the various types of tuberculosis.

### Elevation of Diaphragm in Pulmonary Tuberculosis

Dr A. Ibiapina, assistant in the clinical department of Professor Austregesilo, in a recently published article on the mechanism of elevation of the diaphragm in pulmonary tuberculosis and in phrenicectomy reached the following conclusions. The elastic tension of the lung is the force that causes elevation of the diaphragm. Spontaneous elevation of the diaphragm is due to an increase of the elastic function of the lung, originating in the condensation of the pulmonary lesions and, in certain cases, to the presence of either paresis or paralysis of the phrenic nerve. The greater the extension of the pulmonary lesions, the more intense the elastic tension of the pulmonary tissue of the lung and the higher the elevation of the diaphragm. High elevations of the diaphragm following phrenicectomy correspond to extensive pulmonary lesions and to intense elastic tension of the lung while slight elevations after the same operation, correspond to small pulmonary lesions and not intense elastic tension of the lung. A high elevation of the diaphragm by phrenicectomy is not sufficient in certain cases to neutralize the preexistent high elastic tension of the lung in such a manner as to cause the organ to be left in hypoten-

sion. That is why the lesions in certain cases of pulmonary tuberculosis continue active after phrenicectomy in spite of the fact that the operation results in a high elevation of the diaphragm.

## CAPE TOWN

(From Our Regular Correspondent)

Feb 17, 1936

### The Annual Medical Congress

The medical congress was held at Grahamstown, the old Settler City in the eastern part of the Cape Province, last October. It was well attended and was memorable for the discussion that took place on the question "Is the white race in South Africa degenerating?" One of the most instructive papers in this symposium was read by a practitioner of forty years' standing, Dr J. Jurriaanse of Ermelo, Transvaal. He pointed out that "a certain class of whites are living on a low economic level, in some places even below that of the natives. More to the point was his reminder that, by differentiating between the native and the white man on economic and health grounds, the white settler was laying up trouble for himself, a warning of which the public has not taken the least notice. The lay press, indeed, gave little publicity to a debate that told so luridly of the evils that arise from fostering one section of the population at the expense of other sections. Scientifically, the main question at issue could not be answered, for the available data do not make it possible to say whether white civilization in South Africa is dying or developing. There is no inherent reason why the white settler should not progress in certain parts of the country, but the facts are that the old families are steadily dying out and that the physique and morale of the younger generations are not what they used to be. Factors that have probably nothing whatever to do with climate or subsoil may be responsible for this alarming condition, but so far no one has been able to collate these factors.

### Treatment of Spider Poisoning

Like America, South Africa is plagued with its own special species of *Latrodectus* spiders, which annually bite folk chiefly engaged in agricultural pursuits. Recently M. H. Finlayson has published a paper summing up the recorded evidence of poisoning by the bites of *Latrodectus concinnus* and *L. indistinctus* which in this country replace *L. mactans* of America and *L. hasseltii* of Australia. The symptoms caused by their bites are in general similar to those reported in America and Australia. Severe cramp-like pain, with abdominal rigidity, cyanosis, increased reflexes and a sharp rise of temperature are almost constant features. Death is from cardiac or respiratory failure. In the treatment, potassium permanganate is used locally with atropine and morphine, salines by rectum and solution of posterior pituitary and epinephrine to combat shock. The antiserum to the venom of *L. concinnus* does not completely neutralize the venom of the other species but experiments show that the antiserum of *L. indistinctus* neutralizes both *indistinctus* and *concinnus* venom, and it appears, therefore, to be the best and most suitable weapon in the treatment of *latrodectema*.

### Deaths in the Profession

During the last few months the medical profession in South Africa has lost more than a dozen of its older members through death. Dr A. D. Ketchen, one of the oldest medical consultants, died of heart disease. Dr H. Pellissier, a newly qualified intern, succumbed to septicemia. Dr W. Stewart, a pioneering radiologist, who was both a medical man and an electrical engineer, Dr J. C. MacNeillie, an old member of the legislature, Dr Kerr Cross, a veteran missionary practitioner who had been with Gordon in the Sudan, and Dr Targett Adams, a pioneer in public health administration and bacteriology, are others whose loss is deplored.



## Marriages

MARGARET H NELSON, Madison Wis, to Mr William A Wickers of San Juancito, Honduras, Central America, January 25, at Des Moines, Iowa

GEORGE S MAHON, Nashville, Tenn, to Miss Margarette Elizabeth McCaslin of Massillon, Ala, in Franklin, Tenn, January 4

ENNETT CARLYLE MATTHEWS, Waynesboro, Va to Miss Mary Hodnett of Chatham, February 7

## Deaths

William Fletcher Knowles ☉ Brookline, Mass Harvard University Medical School, Boston, 1885, member of the American Laryngological, Rhinological and Otolological Society fellow of the American College of Surgeons at one time instructor in otology at his alma mater served during the World War consulting aural surgeon to the Massachusetts Eye and Ear Infirmary, and the Massachusetts General Hospital Boston consulting otolaryngologist to the Boston Psychopathic Hospital and the Newton (Mass) Hospital, aged 74 died February 12

Wildy Harding Graves ☉ Murray, Ky, University of the South Medical Department, Sewanee, Tenn, 1899, Hospital College of Medicine, Louisville, 1900, secretary of the Calloway County Medical Society, formerly county health officer and member of the county board of health, member of the city council on the staff of the William Mason Memorial Hospital, aged 62, died, March 9, of coronary thrombosis

Harry S Falk ☉ Erie, Pa, Medico Chirurgical College of Philadelphia, 1899, formerly coroner of Cameron County, medical director of the Louise Home Sanatorium on the staffs of the Erie Infants' Home and Hospital and St Vincent's Hospital, Erie, and the Grand View Sanatorium Oil City, aged 61, died, February 12, of coronary occlusion

John Cutting Berry, Worcester, Mass Jefferson Medical College of Philadelphia, 1871, member of the Massachusetts Medical Society and the New England Ophthalmological Society formerly a medical missionary, on the staff of the Worcester City Hospital, aged 89, died, February 8, of myocarditis and bronchopneumonia

Fletcher Greene Sanborn, Arcadia, Calif, University of California Medical Department San Francisco, 1901, member of the Hawaiian Territorial Medical Association served during the Spanish-American and World wars aged 67 died February 8, in the Hollywood Hospital, Los Angeles, of myocarditis and coronary sclerosis

Samuel R Ward, Richmond, Ill, Georgetown University School of Medicine, Washington D C 1868, member of the Illinois State Medical Society, formerly mayor health officer and member of the school board, aged 93 died January 18, as the result of a fracture of the hip received in a fall

George Richard Little, Schaghticoke N Y University and Bellevue Hospital Medical College New York 1899 for many years president of the board of education on the associate staff of the Leonard Hospital Troy aged 58 died January 18 of cerebral hemorrhage and arteriosclerosis

George Lincoln Bunnell, Shelton Conn Cornell University Medical College New York, 1900 member of the Connecticut State Medical Society, served during the World War on the staff of the Laurel Heights State Tuberculosis Sanatorium, aged 65 died, March 8, of myocarditis

Frank Horace Clapp, North Grafton Mass University of Vermont College of Medicine Burlington 1888 member of the Massachusetts Medical Society, for many years member of the school committee and board of health of North Grafton aged 74 died, February 26, of arteriosclerosis

William Clement Gibson, Jefferson Barracks Mo University of Michigan Department of Medicine and Surgery Ann Arbor 1904, on the staff of the Veterans Administration Facility aged 60 died February 20 in the Veterans Administration Facility, West Los Angeles Calif

Homer Chester Blough ☉ Bens Creek Pa University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore 1926 aged 42 on the staff of the Mercy Hospital Johnstown where he died February 22 of an accidental overdose of phenobarbital

Robert Worth Moore, Fort Worth, Texas Fort Worth School of Medicine, 1906 member of the State Medical Association of Texas at one time lecturer on osteology and embryology at his alma mater, aged 60, died, January 23, in a local hospital, of pneumonia

Charles Edward Ryder ☉ Medical Inspector, Commander U S Navy, retired, Brooklyn, Harvard University Medical School, Boston 1898 entered the navy in 1903 and retired in 1930 for physical disability, aged 61, died, January 12, of coronary disease

William James Risen, Hooker, Okla Hospital College of Medicine, Louisville Ky, 1890, member of the Oklahoma State Medical Association county superintendent of public health aged 71, died January 18, in Liberal, Kan, of heart disease and nephritis

Herman Berg Campbell ☉ Newark N J, University of Pennsylvania Department of Medicine Philadelphia 1902, on the staffs of St Michael's Hospital, Newark, and the Orange (N J) Memorial Hospital, aged 57, died, February 5, of pneumonia

John Cohen ☉ New York, Harvard University Medical School Boston, 1924 served during the World War, aged 45 on the staffs of the Beekman Street Hospital, Montefiore Hospital and the Mount Sinai Hospital, where he died, January 24

Leonard Jarvis ☉ Claremont, N H, Harvard University Medical School, Boston, 1882, past president of the Sullivan County Medical Society on the staff of the Claremont General Hospital, aged 83, died, January 28, of cerebral hemorrhage

Charles Theodore Stovall, Vienna, Ga, Atlanta Medical College 1879, formerly mayor of Vienna and postmaster aged 78, died, January 22 in a hospital at Macon, as the result of burns received when his bed caught fire from a warming pad

Ida E Blackburn, Greensburg, Pa, Woman's Medical College of Pennsylvania Philadelphia, 1895, formerly president of the school board, for many years on the staff of the Westmoreland Hospital, aged 73, died, February 21, of heart disease

Joseph Benjamin Elliott ☉ Falkville Ala, University of Alabama Medical Department, Mobile, 1905, formerly secretary of the Morgan County Medical Society, aged 55, died February 12, in a hospital at Decatur, of pneumonia

Frederick Warder Townsend, Pacific Palisades, Calif Ohio Medical University Columbus, 1895, veteran of the Spanish-American and World wars aged 63 died, January 22 in St Luke's Hospital, Spokane, of cerebral hemorrhage

Francis George Leonard ☉ Cleveland, Starling Ohio Medical College, Columbus, 1910, fellow of the American College of Surgeons visiting surgeon to St Luke's Hospital aged 53, died, February 6 of coronary thrombosis

Ralph Warner Ellis ☉ Worcester, Mass Harvard University Medical School, Boston, 1918 medical director of Clark University, on the staff of the City Hospital aged 44, died March 3, of wounds self inflicted with a scalpel

Samuel John Joseph Kelly, Philadelphia Medico-Chirurgical College of Philadelphia 1899, for many years medical inspector for the board of health in the parochial schools aged 61, died, January 18, of cerebral embolism

Squire Raymond Boggess, Lawrenceburg Ky, University of Louisville Medical Department 1921, member of the Kentucky State Medical Association county health officer, aged 39 died, February 14, of cerebral hemorrhage

Cuvier L Clover ☉ Knox, Pa Bellevue Hospital Medical College New York 1891 past president of the Clarion County Medical Society aged 70 died February 22, in a hospital at Orlando, Fla of arteriosclerosis

Jacob Brin, St Louis, Julius-Maximilians Universität Medizinische Fakultät Würzburg Bavaria Germany, 1892 aged 69 died February 19 in the Jewish Hospital, of cerebral thrombosis and arteriosclerosis

William Milton Dill, Erie Pa University of Pennsylvania School of Medicine Philadelphia 1909 aged 56, died January 18 in St Vincent's Hospital of carcinoma of the seminal vesicle and prostate

James Mossop Cornely Madera Pa Jefferson Medical College of Philadelphia 1907, member of the Medical Society of the State of Pennsylvania, aged 58, died suddenly February 5 of heart disease

Edward Roscoe Merrill, Santa Barbara Calif Harvard University Medical School Boston 1885 member of the California Medical Association aged 77 died, recently, of endocarditis and myocarditis

## Bureau of Investigation

### "PROF" BRAGG AGAIN

#### Is Washington's Loss Miami's Gain?

For years it has been known that those sections of the country in which elderly people and invalids congregate have more than their share of quacks and faddists. For this reason southern Florida is beginning to challenge the emence of other resorts for this doubtful honor. This winter Miami has been visited by the quack who calls himself 'Professor Paul C Bragg.' Readers of *THE JOURNAL* may remember what has been published regarding Bragg, who was described as a "food faddist and sexual rejuvenator." Bragg is one of those ignoramuses with a flair for public speaking who confer on themselves ornate titles and give "free lectures," which are really come on advertisements for the books, the nostrums and the so called private courses that they have for sale.

Bragg has worked particularly along two lines—food fads and sex, two subjects that are perennially popular with the type of

tures in Washington a year ago he was charged with practicing the healing art without a license, found guilty and fined a hundred dollars. He violated the law of the District of Columbia by attempting to diagnose diseases, by prescribing a "patent medicine" of his own devising and by attempting to relieve certain diseases. He is estimated to have taken about \$7,000 out of Washington, for he charged \$20 a person for a series of six so called classes which some 350 persons attended. Observers from the office of the Commission on Licensure and from the District Medical Society attended Bragg's "classes" and obtained enough evidence to bring action against him in the police courts.

## Correspondence

### THE CORONER SYSTEM

*To the Editor*—The controversy concerning the coroner system that has been going on in England during the last two years is the inevitable protest of progress against an anachronism. Antiques belong in museums and should not continue to be parts of the government of everyday modern life. The compromise report of a royal committee appointed to correct faults in the coroner system has met with the disapproval of the British Medical Association, as was to be expected (*THE JOURNAL*, March 21, p. 1018).

The coroner system originated in the early period of Anglo-Saxon history. As the name implies, the coroner, or "crownner" was originally the personal representative of the crown in judicial procedures, but his duties came to deal particularly with investigations of deaths by violence. This country inherited the coroner system through the colonial and provincial laws that were adopted into its judicial system on the founding of the United States. Under the primitive conditions that existed before police and judicial systems were developed, the coroner and his jury fulfilled a useful purpose.

Just as scandals arising out of the character of the system and its methods gave rise to the present controversy in England so in Massachusetts in 1877 scandals caused the Massachusetts Bar Association and the Massachusetts Medical Society in joint action to investigate the system. Their studies disclosed that when a death arose from violence two basic questions had to be considered: 1. What caused the death? This could be answered only by medical investigation. 2. Who caused the death? This was a matter for the police and the courts to determine. In answering these questions the coroner was called on to straddle the functions of two professions, medicine and law. Moreover, the antiquated machinery which he governed creaking with age, operated so slowly that modern police and judicial systems made its findings ineffective and its efforts unnecessary. Under modern conditions the coroner is literally a fifth wheel on the judicial coach, and an unnecessary expense.

The Massachusetts medical examiner system (Leary, *Timothy: The Medical Examiner System*, *THE JOURNAL*, Aug. 20, 1927, p. 579; *Methods and Problems of Medical Education*, series 9 Rockefeller Foundation, New York, 1928), evolved out of the joint studies of the bar association and the medical society, abolishes the coroner, places the responsibility for determining the cause and manner of deaths by violence on the medical examiners, and refers to the police and the courts the problem of finding and prosecuting the persons committing the crimes. The system has been practiced now for fifty-eight years. It has been adopted in part in all of the New England states excepting Vermont (which has no medicolegal system) in the city of New York, and in Essex County, N. J. The medical examiner system makes for simplicity, utility and efficiency.

TIMOTHY LEARY, M.D., Boston.

Medical Examiner for Suffolk County

**MIAMI DEMANDS MORE FREE HEALTH LECTURES**  
By  
**Prof Paul C Bragg**  
Nationally Famous Health Teacher

Hundreds demand that Prof Bragg remain in Miami a few days longer and give more of his new messages of health. Therefore he has cancelled his lectures in Washington D C and will give 5 MORE FREE LECTURES

**BAPTIST AUDITORIUM**  
N E 5th St. and 1st Ave  
Mon., March 9 at 2 p.m. 8 p.m.  
Tue., Mar 10 at 2 p.m. 8 p.m.  
Friday March 15 at 8 p.m.

**5 FREE LECTURES**

**Your Opportunity to Get Health**

Over eight hundred people in the Miami area are finding Health under the BRAGG SYSTEM of eating live foods. So can You

**Don't Give Up Hope, Let Prof Bragg Show You the Way to Health**

Reproduction (reduced) of one of Bragg's advertisements in a Miami paper

intelligence that is impressed by charlatans of the Bragg type. Following the "free lectures," it has been Bragg's habit to take up collections, offer his books and 'patent medicine' for sale as well as suggest that the audience subscribe for his special classes.

Bragg seems to have found Miami a lush field this winter, but toward the end of the season he began to talk of going back north. A Miami paper however in its issue of March 8 carried a display advertisement in which it was stated that

'Miami Demands More Free Health Lectures by Professor Paul C Bragg, Nationally Famous Health Teacher.' The advertisement stated further that because of the hundreds of demands that Bragg should remain in Miami a few days longer he had 'cancelled his lectures in Washington D C, and would give five more 'free lectures'.

Bragg's cancellation of his lectures in Washington, D C, may have been due to the fact that sickers were still biting in Miami but it is quite as probable that his action was at least partly predicated on the fact that when he conducted his lec-

### "TREATING TUBERCULOSIS IN GENERAL HOSPITALS"

*To the Editor*—Your special issue on "Tuberculosis" is of special significance in my state, where the Department of Institutions has recently launched a broader program in an effort to control this disease.

A little more than three years ago, the Central Maine General Hospital cooperated with the state department of institutions in providing beds for convalescent tuberculosis patients, thus filling an unoccupied space in our hospital and making room in the sanatoriums for a large waiting list.

With the advance of surgical procedures in treatment of tuberculosis, and with the installation of such equipment as is necessary to carry on medical asepsis in tuberculosis wards and the engaging of nurses and supervisors who are properly trained, we have admitted surgical patients whose sputum has been positive.

A year ago we opened another pavilion for the treatment of fifteen surgical patients in private rooms. A tuberculosis staff has been organized having a surgeon in charge and an associate surgeon, and a physician in charge and an associate physician.

This program has brought the tuberculous patient back into the field of general medicine. As I see it there is a marked increase in the interest which the general practitioner in this community has in this unnecessary disease. Outpatient clinics have been established for diagnosis. I am sure that a number of cases have been found at a much earlier date because the members of our staff are somewhat tuberculosis conscious. The program has also made it possible to treat some private patients who would otherwise have been treated as state cases in the sanatoriums.

As I see it the trend as outlined in the Tuberculosis number 'Treating Tuberculosis in General Hospitals' is a healthy one and a much better solution for the control of this disease than state medicine ever can be. If the several states subsidized tuberculous patients in general hospitals and permitted those patients who pay a certain minimum charge to be treated as private patients by a physician of their choice the patients, the hospital and the physician would be benefited.

JOELLE C HIEBERT, M D, Lewiston, Maine  
Superintendent, Central Maine General Hospital

### STATUS OF ALLERGY TEACHING

*To the Editor*—May I be permitted to comment on an article by Dr I Harrison Tumpeer, 'Status of Allergy Teaching as indicated in Medical School Announcements' (THE JOURNAL, Aug 24 1935, p 744)?

It is fallacious to assume that because allergy is not specifically listed in the catalogue of a medical school it is therefore not taught at all or at most presented inadequately. It seems strange that this did not occur to Dr Tumpeer when sixty out of seventy-nine medical schools are so indicted.

For example in the University of Pennsylvania the teaching of allergy has had what even an allergist must consider an adequate presentation of the subject for undergraduates. There are teaching hours to second third and fourth year classes by members of the staff of the Allergy Section of the Division of Internal Medicine a section which was begun in 1920.

True our catalogue does not mention teaching hours in allergy. But neither does it mention teaching hours in numerous other subdivisions of the field of internal medicine. I assume of course, that allergy is primarily a part of the field of internal medicine an assumption that has the sanction of the Council on Medical Education and Hospitals which has so ruled in the matter of certification of specialists.

Dr Tumpeer seems to realize the weakness of his position when he concludes "A supplementary study may well be undertaken by the questionnaire method to fill in the details omitted from the catalogues." Such a study has actually been carried out by a committee of the Association for the Study of Allergy and gives quite a different picture.

That the Council on Medical Education and Hospitals or the Association of American Medical Colleges shall inform itself on the details of allergy teaching in medical schools is admitted, just as they should be familiar with the attention paid to other subdivisions of internal medicine. But that these detailed data appear in a medical school catalogue is both unnecessary and unpractical.

RICHARD A KERN M D, Philadelphia

Professor of Clinical Medicine and Chief of the Allergy  
Section of the Division of Internal Medicine Hospital  
of the University of Pennsylvania

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### OCCUPATIONAL HAZARD TO GASOLINE SERVICE STATION ATTENDANTS

*To the Editor*—A white man aged 29 single a gasoline service station attendant has noticed a gradual progressive impairment of vision of the left eye for the past three years. There is no associated headache or pain of any sort. For a short time about two and a half years ago he complained of diplopia but has not noticed this since. For the past two or three years he has observed at times slight difficulty in starting to urinate but this has not been a constant complaint. On several occasions he has been subject to a tic involving the muscles of the left cheek. In the past two months there has been a definite generalized weakness. The patient has worked as gasoline station attendant for the past eight years dispensing gasoline treated with tetra ethyl lead. About two months ago he was given a thorough examination. He appeared well developed and well nourished. Vision of the right eye was 20/40 and of the left eye 8/100. The eyes were entirely negative to external examination the tension pupillary reaction and extra-ocular movements being normal. Ophthalmoscopic examination showed definite pallor of the temporal sides of both disks in the area of the papillomacular bundle. This was more marked on the left than on the right side. There was no evidence of inflammatory disease in the fundi. The visual fields were essentially normal in outline for white and colors but there was a relative central color scotoma in the right eye and an absolute color scotoma in the left eye. The physical examination was essentially negative. The blood Wassermann reaction was negative. The spinal fluid had 20 cells an increased Pandey test increased protein content and a mastic colloidal gold curve and negative Wassermann reaction. The hemocytologic examination was negative throughout. The blood chemistry was normal except for the lead content of the blood which was 0.08 mg. the normal being according to standards consulted 0.05 mg. and the high level of 0.1 mg. being found in acute lead poisoning. The neurologic examination was essentially negative except for the ophthalmologic manifestations and very weak abdominal reflexes. Examination of the nose throat and accessory nasal sinuses showed a questionable infection of the ethmoidal cells although the patient had an acute cold at this time. The roentgenograms of the teeth sinuses and sella turcica were entirely negative. What conditions based on the history and examination should be included in the differential diagnosis? Does the negative blood picture exclude chronic plumbism? Can these conditions be explained on the basis of chronic plumbism? Can the spinal fluid picture be explained on the basis of chronic lead poisoning? Can the disk changes be explained by chronic plumbism? What is the most likely underlying pathologic condition in this case? If this communication is published please omit name.

M D New York

ANSWER—The ordinary operations about a filling station provide no great exposure to any of the several harmful substances that may be dispensed. Causes unrelated to work are accepted with greater probability as responsible for the condition described. However on the assumption that this condition represents an occupational disease consideration is given to four possible causes (1) tetra ethyl lead (2) methyl alcohol (3) carbon tetrachloride and (4) gasoline (naphtha benzene). The differential diagnosis here considered does not extend beyond these substances.

The possibilities of lead poisoning from casual contact with tetra-ethyl lead in gasoline have been exaggerated. The quantity of this substance per gallon of gasoline is so low as to be toxicologically insignificant. Both in the United States and England elaborate studies have been conducted among gasoline station attendants seeking to establish evidence of injury from

lead in gasoline. No such evidence has been found, and it is believed that in this case industrial exposure to lead at a filling station may be denied.

2 Methyl alcohol (methanol, wood alcohol) is widely used in some states as a preventive of freezing and is dispensed at gasoline stations. This possibly should be considered in differential diagnosis, but from the manner of dispensing wood alcohol for antifreeze purposes and the relative infrequency of this procedure, no marked attention need be extended.

3 In this day and time many gasoline stations dispense dry cleaning agents, chiefly derived from petroleum, although some blends may contain a percentage of carbon tetrachloride to render the mixture less inflammable. If actual exposure took place, carbon tetrachloride poisoning might arise in which involvement of the posterior portion of the eye might occur, such as described by Wirtschafter. Since these dry cleaning preparations are ordinarily dispensed in sealed tins, this hazard is discounted.

4 Evidence is accumulating that light petroleum derivatives are capable of producing a bizarre chronic state involving especially the central nervous system. This condition has attracted much less attention than the states arising from exposure to benzene or toluene. Explanation possibly may be found in the marked lack of uniformity in manifestation. This chronic naphtha poisoning is quite apart from the well known "naphtha jag," which closely resembles alcoholic intoxication and which condition promptly follows exposure through inhalation to any of the solvents derived from petroleum. Chronic naphtha poisoning more often than not simulates multiple sclerosis. Psychotic states may be associated. Occasionally manifestations may be limited to a single item such as perversion of taste, retrobulbar neuritis or loss of memory. Series of cases have been described by Hayhurst and by Hamilton. Retrobulbar neuritis has been described by Peters. It is impossible to present a typical case because of the lack of uniformity of symptomatology, but from the aggregate of many cases so diagnosed it may be pointed out that from time to time there arises muscular weakness with tremors, loss of reflexes, particularly the abdominal reflexes, tics, mental confusion, epileptoid seizures, loss of memory, drowsiness, changes in disposition, peripheral neuritis, and paresthesias. Jaundice is fairly common during earlier stages and so also are gastro-intestinal upsets, urinary disturbances, occasionally albuminuria and anemia. In the absence of proved marked and extended exposure, a diagnosis of chronic naphtha poisoning is unwarranted.

#### TEST FOR OCCULT BLOOD

To the Editor—There is a test for occult blood the solution for which is made of phenolphthalein some sodium salt. I think and granulated tin as a catalyzer. The material to be tested is treated with hydrogen peroxide before being layered with this solution. Will you kindly state the details of the preparation of the solutions for this test and for conducting the test? Also please state the limitations of this test. What name is usually given to it?

GRADE EDWARDS M.D. Ferozepur Punjab, India

ANSWER—The phenolphthalein test for occult blood was originally employed by Meyer (*Munchen med Wchnschr* 50 1489, 1903) and was so improved by Kastle and Amoss (*Bull* 31, Hygienic Laboratory, U S P H & M H S, 1906) that it is one of the most delicate tests for blood. Its limit of delicacy is about 1 part of blood in 8 million of water. The hemoglobin acts as an oxygen carrier, the active oxidizing agent being hydrogen peroxide.

Phenolphthalein is the reduction product of phenolphthalein, produced by the action of zinc in alkaline solution. When oxidized in alkaline solution it is converted into phenolphthalein with the formation of an intense red color. The reagent may be purchased or may be prepared as follows. Phenolphthalein is dissolved in an excess of 30 per cent sodium hydroxide solution and boiled with an excess of zinc dust until a few drops of the strongly alkaline liquid no longer gives a red color after neutralization with hydrochloric acid and sufficient alkali to alkalinize the solution. The solution is then decanted from the zinc dust, and the phenolphthalein is precipitated by the addition of hydrochloric acid. The precipitate is collected on a filter and purified by repeated crystallization from water and alcohol. This is continued until a white crystalline powder is obtained free from phenolphthalein (shown by the absence of a red color on addition of alkali). The powder is dried, contact with metallic surfaces being avoided. The powder should be kept in a tightly stoppered bottle in a dark place.

For testing for occult blood the solution is prepared as follows. Mix a slight excess of phenolphthalein, thus prepared, with 1 cc. of tenth normal sodium hydroxide solution and a few cubic centimeters of redistilled water, shake and filter. To

the filtrate add 20 cc. of tenth normal sodium hydroxide solution, 0.1 cc. of 3 per cent hydrogen peroxide solution and make up to 100 cc. To one part of an aqueous solution of a suspected stain, or of secretion or excretion to be tested, add 2 parts of the reagent and allow to stand for a few minutes. In the presence of blood a pink to red color appears, the intensity depending on the amount of blood.

This reaction is retarded by extracts of various tissues or secretions of the body. Boiling the solutions before applying the test removes most of the interfering factors. If a secretion is treated with a thick cream of aluminum hydroxide suspension, the precipitate will carry down the blood pigment and concentrate it. A small amount of this precipitate (from urine feces suspension saliva, exudates) will yield a decided red color when added to 2 cc. of the reagent. This test is especially valuable for the detection of blood in all secretions and excretions (which are boiled before the test is applied) and particularly in the examination of suspected stains for forensic purposes.

#### DISTURBANCES OF INTERNAL EAR

To the Editor—During the past two months I have had two cases which have puzzled me very much. The onset of the illness begins like a common cold. After about two hours the patients become nauseated, vomit and have severe vertigo which is subjective. This comes on if they turn in bed in both cases it has been when turning on the left side. Remaining on the right side they feel quite comfortable. There are no other symptoms referable to the ear. There is no complaint of any type except the gastric and vertigo. Physical examination of the ears, eye grounds and reflexes is all negative. The temperature is normal, the pulse but slightly elevated. All the symptoms clear up in a day or two but there may be a residual infection of the upper respiratory tract. I have treated these patients with morphine and sodium amylal. Is this condition due to a catarrhal inflammation of the vestibular or semicircular canals? I have not been able to reconcile these symptoms with a Meniere's syndrome. Has the treatment been correct? Please omit name.

M D Iowa

ANSWER—The description of the cases leads one to think that the internal ear is affected. The exact nature of the mechanism is a mystery. There are a number of explanations given. Some think that a true neuritis of the vestibular nerve may occur as the result of the toxemia of a cold. Such a condition would resemble a neuritis elsewhere and would call forth in addition the characteristic symptoms of irritation of the static labyrinth. There are others who believe that a mild labyrinthitis from a contiguous acute otitis may be present with slight exudate affecting the neuro epithelium of the labyrinth and producing characteristic signs. There are numerous other instances in which the feeling of many observers is that the condition is due to acute catarrh of the eustachian tube. This would be easy to understand because of the concomitant head cold that so often ushers in the syndrome. Catarrhal stenosis of the tube would lead to changes in the dynamics of the middle and internal ear mechanism. Catheterization of the eustachian tube in the instances is helpful. One must also consider the possibility of a drug toxemia, because many people medicate themselves at the onset of a cold with salicylates and with quinine preparations, to which the labyrinth is notoriously susceptible. The mild course of these illnesses seems proof that whatever its nature, the pathologic condition is not profound. The more severe and long standing types of vestibular disturbances to which the name Meniere's syndrome is usually attached are probably due to chronic changes, such as sclerosis, in the blood vessels supplying the internal ear.

#### MECHANISM OF AIR EMBOLISM

To the Editor—I know that air should not be introduced into the circulation in infusions transfusions or any intravenous technique but can you tell me the mechanism of an embolism and the dangers? Is it immediate as in right auricular failure? Has experimental work on large amounts tolerated been done? I have known of large amount being introduced without apparent harm. Is it a phobia unfounded that a small bubble may be fatal? I have never known of such a fatality.

CORNELL P GRAY M.D. Hanover Pa.

ANSWER—The amounts of air required to produce death in intravenous injection into animals are variable. L Welch (*Virchows Arch f path Anat* 174 454, 1904) found that 10 cc killed rabbits but that dogs could survive 250 cc. injected slowly during the course of thirty minutes. Karner (*Human Pathology*, ed 4, Philadelphia, J B Lippincott Co, 1935) reported death in the dog only after 450 cc had been injected in the course of twenty-five minutes. The variability in animals is not altogether a function of size and the results cannot be transferred quantitatively to man. The amount of air required for death of man is not known. Injected air accumulates principally in the right side of the heart and

in the pulmonary arterial system but also passes on into the systemic circulation. In the experimental animal, failure of the right side of the heart is marked. In man, injection of large quantities of air is rare. Most fatal cases are due to aspiration of air into chest veins during operations about the neck and in the chest. Here the principal factor in the cause of death is embolism into the coronary arteries (Rukstnat, George, *Experimental Air Embolism of the Coronary Arteries*, *THE JOURNAL*, Jan 3 1931, p 26) and cerebral arteries (Chase, W H, *Surg Gynec & Obst* 49 569 [Oct] 1934) rather than failure of the right side of the heart. With this consideration it is probable that relatively small quantities may be of importance. While fatalities from accidental injection of small quantities of air have not been reported it is wise to avoid the possibility, however remote, that a bubble might lodge in a coronary or cerebral artery. A minute amount of air in a syringe might be of no significance, but carelessness in this respect might ultimately result in the neglect of a column of air in the rubber tubing of an intravenous infusion apparatus.

#### DETACHMENT OF RETINA

*To the Editor*—A satisfactorily nourished single woman about 30 years of age of a myopic family, has myopia. One brother has had bilaterally detached retinas with blindness since the age of 14 years. Another brother, her sister and her father wear quite strong corrective lenses. The patient herself has had her left retina detached for a number of years with resultant complete loss of vision in the left eye. She is reasonably apprehensive of her right eye avoiding automobile rides or other recreations that would invite jars or shocks. In the good right eye an opacity of the lens has developed. Soon the cataract will be ripe enough to remove, because her remaining vision is impaired by the opaque lens. She now wears an Optica Dextra correction lens of -6.50 sphere -2 cylinder axis 15. It is known that removal of the lens in extreme myopia is beneficial to clarity of stationary focus. My question however is really that of the patient: what are the chances in skilled hands of her remaining retina becoming detached in the course of the operation thus precipitating a destruction of all sight permanently? Are there percentages available on this catastrophe or not occurring in the course of cataract extraction in myopia? If so kindly quote. Please omit name.  
M D, New York

*ANSWER*—There are no percentages available as to the frequency of occurrence of detachment of the retina after extraction of cataract in either a myopic or a normal eye. The chances of the retina becoming detached during the course of the suggested operation are slight, the greatest danger of such a detachment occurs from months to years later. The development of an opacity in a moderately myopic eye of a 30 year old patient should be investigated from the etiologic standpoint most thoroughly before the question of operation is considered. In all probability there must be a disease condition of the eye responsible for the early formation of the cataract. And the same disease condition might be a predisposing factor toward the development of a detachment. Consequently, it would appear that a thorough overhauling of that patient, both ocular and general, is in order.

#### FARASTAN OR MONO IODO CINCHOPHEN

*To the Editor*—Please give me all the information you can about a Preparation known as Farastan Mono Iodo-Cinchophen. A synthetic compound of Cinchophen and Iodine made by the Farastan Company of Ardmore Pa. I have a patient who is suffering from chronic arthritis and neuritis for whom this preparation was prescribed by another physician with considerable relief from pain. I have been afraid to use it and will not do so without assurance from you that it can be used with safety.  
M D Texas

*ANSWER*—In a report published more than five years ago the Council on Pharmacy and Chemistry declared Farastan not acceptable for inclusion in New and Nonofficial Remedies because 'it is an irrational preparation marketed with unwarranted therapeutic claims' (*THE JOURNAL* Feb 15 1930, p 484). At that time Farastan was claimed to be mono-iodo cinchophen, a new chemical complex, containing approximately 33.6 per cent of iodine. A note published three years later (*THE JOURNAL*, March 4, 1933, p 686) includes a summary of the Council's objections to Farastan, as published in its adverse report in addition to the following pertinent remark: 'There is no reason to suppose that the likelihood of producing hepatitis from Farastan is any less than that from an equivalent amount of cinchophen.'

Now the U S Department of Agriculture, in a press release dated Dec 20, 1935, calls attention to the seizure of a shipment of 'Farastan Mono-Iodo Cinchophen Compound' because 'the name was held to be false and misleading since the article consisted almost entirely of cinchophen (97%)'. This information is quite interesting in view of the manufacturer's oft repeated claim that Farastan is a 'synthetic compound of cinchophen

and iodine" which is "more valuable than the older cinchophen products" because it is "more potent therapeutically and more easily tolerated". Thus Farastan appears essentially to be cinchophen, those using cinchophen will prefer to employ products marketed under the pharmacopeial name with full knowledge of the potential dangers of this product and exploited without unwarranted and misleading claims.

#### THE INTERMEDIATE GANGLION

*To the Editor*—Howell says that the dilator fibers to the pupil pass down the spinal cord to terminate in the lower cervical region. From this point the path is continued by spinal neurons which leave the cord in the eighth cervical and the first and second thoracic spinal nerves and pass by way of the corresponding rami communicantes into the sympathetic chain at the level of the first thoracic ganglion. From this point the fibers pass upward in the cervical sympathetic without terminating until they reach the superior cervical ganglion. From this ganglion the path is continued by postganglionic fibers. De Takats (*Peripheral Vascular Diseases Arch Int Med* 56 612 [Sept] 1935) says: 'For the sympathetic denervation of the upper extremity it is necessary to cut the dorsal sympathetic trunk below the second dorsal ganglion because of a frequent communicating branch from the second ganglion to the first thoracic nerve. It also became evident that removal of the inferior cervical ganglion without the intermediate ganglion may lead to incomplete denervation or to Horner's syndrome indicating that connections are possible between the cord and the intermediate ganglion. If Horner's syndrome is due to interruption of preganglionic fibers why is it more apt to occur when the middle cervical ganglion is left intact? If by the intermediate ganglion the author means the first thoracic the same holds true. Interruption of the pathway at any point should cause Horner's syndrome. Partial preservation of the pathway would not be expected to cause the syndrome or to make it more likely to appear.'

SAMUEL L. SIMMERMAN, M.D. Philadelphia

*ANSWER*—There is a misleading, typographic error in the statement concerning the production of Horner's syndrome after sympathetic ganglionectomy. The sentence should read: "Removal of the inferior cervical ganglion without the intermediate ganglion may lead to incomplete denervation or no Horner's syndrome." The author wished to emphasize that when the intermediate ganglion is not removed there may be an absence of Horner's syndrome even though the stellate ganglion has been excised. As cervicodorsal sympathectomy is done by most surgeons through the posterior approach, this small ganglion which lies ventral and cephalic to the inferior cervical ganglion, may escape removal, and as it seems to have direct connections with the cord, the tonic influence on the eye is not or is only incompletely abolished. One of the causes of failure following cervicodorsal sympathectomy is the failure to excise this ganglion. For this reason among others, the anterior approach of Gask is preferable as this small mass of ganglion cells lies anterior to the vertebral artery.

The intermediate ganglion, according to the anatomic dissections of Cabanac (*Ann Anat path* 8 309 [March] 1931) is present in about 70 per cent of the cases. Its presence is due to a redistribution of ganglionated masses situated between the middle and inferior cervical ganglions. When present, the middle and inferior ganglions are smaller. The latter may be hidden behind the intermediate ganglion and may escape the surgeon's notice, thus again resulting in incomplete sympathetic denervation. Attention to and recognition of this structure is an important point in the technique of cervicodorsal sympathectomy.

#### CHAULMOOGRA OIL IN ARTHRITIS

*To the Editor*—I have a patient suffering from pondylitis deformans who has read in the daily newspapers of chaulmoogra oil and is anxious to use this. Please give me all the information you have in the manner of administration and dosage. The patient is 35 years of age.

CHARLES A. BALKWILL, M.D. Grafton Wis

*ANSWER*—The use of chaulmoogra oil is entirely empirical. P. A. McIlhenny first suggested this therapy and reported improvement in a series of thirty-nine cases (*Chaulmoogra Oil in the Treatment of Arthritis, New Orleans M & S J* 84 182 [Sept] 1931). G. A. Hebert made a preliminary report of a similar nature (*Treatment of Arthritis with Chaulmoogra Oil Tri-State M J* 5 1050 [Feb] 1933). Neither of these authors had any controlled series of cases and their reports will not impress those who have seen numerous therapeutic agents enthusiastically recommended and tried, only to be abandoned after more experience with them.

Chaulmoogra oil has been used for years in the treatment of leprosy and its value in this field has been favorably received. In the treatment of arthritis it has been used both orally and intramuscularly, simultaneously. One and two-thirds cubic centimeters has been recommended, taken three times daily in enteric capsules, 5 cc. of a mixture containing the oil is injected



biweekly deep into the gluteal muscles. Hebert has advised that the initial dosage be only 3 cc. The mixture consists of 0.2 Gm of benzocaine, 10 cc of olive oil and 90 cc of crude chaulmoogra oil.

There is moderate local pain after each injection and some systemic reaction occurs, characterized by leukocytosis. Several instances of abscesses in the gluteal muscles have been reported.

#### CHRONIC PANCREATITIS OR ADRENAL TUMOR

*To the Editor*—A man aged 42, a cigar salesman, whose normal weight is 160 pounds (73 kg), has been subject for the past three years to frequent attacks of gastrointestinal disturbances characterized by constipation, a sense of fullness and pain in the upper left quadrant of the abdomen. These periods are accompanied with the occurrence of rather pronounced glycosuria which promptly disappears on subsidence of the gastrointestinal symptoms. During the free periods he is apparently in normal health and his carbohydrate tolerance is quite normal while during the periods of the attacks (usually lasting from one to three days) the tolerance is low so that four drops of urine in 1 cc of reagent precipitates a heavy deposit. For the past three years he has lost 20 pounds (9 kg). Could this syndrome be due to a chronic pancreatitis with acute exacerbations? I would greatly appreciate any suggestions toward establishing a diagnosis and possible treatment. Please omit name.

M D Ohio

*ANSWER*—The description of this case is not inconsistent with the diagnosis of chronic pancreatitis with acute exacerbations mentioned in the query. An examination of the stool during or after attacks for evidence of lack of pancreatic juice or bile might be helpful.

However, it must be remembered that infection anywhere in the body may cause marked lowering of carbohydrate tolerance. Thus a diverticulitis of the colon should be considered. Roentgen examination is suggested.

If these suggestions are not productive, it might be well to visualize the region of the adrenal glands regarding the possibility of a medullary tumor.

#### CEREBRAL HEMORRHAGE WITH PARALYSIS

*To the Editor*—Please discuss the treatment of apoplectic cerebral accidents caused by edema or hemorrhage especially at the time of the accident and for the eight weeks following it. In Current Medical Literature (THE JOURNAL June 30, 1934 p. 2237) was an abstract of an article by R. Colella and G. Pizzillo on the treatment of cerebral hemorrhages and emboli by autohemotherapy. Do you know of any reason why some other foreign protein would not give as good results used in this manner as one's own blood or are there to be expected different effects from the use of different foreign proteins that are put out by different pharmaceutical houses?

H T CUMING M D Pace Miss

*ANSWER*—The accepted treatment for hemiplegia following cerebral injuries is usually cerebral exploration on the side contralateral to the paralysis. The exploration usually consists of a large decompression, following which a brain cannula is inserted into the brain at the site suggesting the location of the lesion. If a blood clot is encountered, the cortex may be incised through a silent area and the clot evacuated. Diffuse intracerebral hemorrhage with edema may be partially relieved by the cranial decompression. Dehydration accomplished by fluid limitation to 1,500 cc daily is effective treatment. Saline cathartics and intravenous dehydration by the administration daily of 1,000 cc of 20 per cent dextrose solution are likewise effective in controlling edema. There seems to be no recorded American experience with autohemotherapy in such cases.

#### TRICHOMONAS AND LEUKORRHEA

*To the Editor*—Your recently published query and minor note on leukorrhea should have mentioned trichomonas infection which of course is more productive of leukorrhea after the periods and produces no palpable pathologic changes. I should much appreciate the author of the reply referring me to the original research which proves that increased physiologic secretion due to emotional stimulation macerates the cervical mucosa and so produces a glandular hyperplasia leading to erosions and leukorrhea.

M D, Iowa

*ANSWER*—The reply to the query on leukorrhea did not mention *Trichomonas vaginalis* because the inquiry stated that repeated examination proved negative for organisms.

Our reply did not state or suggest that original research has proved that increased physiologic secretion due to emotional stimulation macerates the cervical mucosa and so produces a glandular hyperplasia leading to erosions and leukorrhea. But clinical observation has led to this deduction, and careful clinical observation of patients is often more productive than pure laboratory study. In this connection it might have been well

to mention the specific cervical changes that accompany abnormal secretion or administration of estrogenic substance, as has been emphasized by Hofbauer and others.

#### USE OF IODIZED OIL IN BRONCHOGRAPHIC WORK

*To the Editor*—How is the iodized oil used in bronchographic work prepared? 1 Is there a cheaper substitute for it? 2 Can it be prepared from some cheap oil such as cottonseed oil? 3 If so could this procedure be accomplished in a moderately well equipped laboratory?

M D, North Carolina

*ANSWER*—The original iodized oil, introduced as "Ipiodol" is 40 per cent iodine (by weight), chemically combined with the unsaturated hydrocarbon molecules of poppy-seed oil. Its exact method of manufacture is too involved for preparation except under careful chemical control. It is remarkably free from uncombined iodine.

1 Several of the other iodized oils are cheaper than iodized poppy-seed oil. Some proprietary preparations have a lower iodine content (not more than 26 per cent). If a preparation of less iodine content is desired, iodized poppy seed oil may be diluted, in which case it may be cheaper than other products.

2 Unsaturated oils other than poppy-seed oil may be used, but cottonseed oil is unsatisfactory.

3 The preparation of iodized oil has been attempted by several physicians in hospital laboratories but we do not know of any one who has been permanently satisfied with a home made oil.

#### EFFECT OF FLUID INTAKE IN EPILEPSY

*To the Editor*—What is the current opinion as to the effect of fluid intake on the treatment for epilepsy?

BEN G. CHAPMAN, M D Cromwell, Ind

*ANSWER*—The majority of investigators today favor 'the mechanical theory of epilepsy', that is, the theory that the immediate, precipitating cause of the convulsion is cerebral edema. This edema is the result of a disturbance in water balance whereby the brain cells become abnormally swollen with excess fluid or else the spinal fluid reservoirs accumulate excessively large amounts of fluid or both. Theoretically and experimentally it may be demonstrated that rigid fluid restriction will dehydrate the body tissues, including finally the brain. Fay introduced fluid restriction or dehydration in the treatment of epilepsy and suggested that the beneficial effect of the ketogenic diet was at least partly due to its dehydrating action. Hydration by forcing fluids or by injecting a fraction of pituitary extract or both will often precipitate a convulsion in an epileptic patient, while rigid fluid restriction, including foods with high water content, will control grand mal attacks. It seems to have no effect on petit mal seizures. Restriction to less than 400 cc (13 ounces) may cause erythrocyturia and must be carefully watched. Details of the diet preparation and fluid regulation is well as references to the literature may be found in the *Annals of Surgery* 101:76 (Jan) 1935.

#### DYSMENORRHEA

*To the Editor*—My problem is one of dysmenorrhea but is different from what I have seen in literature in that the severe pain comes on one or two hours after the patient starts flowing. She is 23 years old has been married one and a half years, and has had no pregnancy to date. She started menstruating at 15, of the regular twenty-eight day type. Dysmenorrhea has occurred ever since becoming worse since she married. The patient is sick three days before flowing starts with nausea, belching of gas, dizziness and weakness. During this time she has severe pain in the right lower part of the abdomen over the right ovary. She is in bed usually four days. Physical examination gives normal results except for a slightly retroflexed uterus smaller than normal. Would you suggest dilation and curettage in this case? Any suggestions would be appreciated. Please omit name if published.

M D, Minnesota

*ANSWER*—This is evidently a case of congenital primary or essential dysmenorrhea, in which there is freedom from demonstrable pelvic abnormality. The causes of this kind of dysmenorrhea have not as yet been satisfactorily explained. It is agreed that cramping of the uterine musculature is responsible for the pain. Beyond this point one passes into the realm of theories.

Dilation brings permanent relief to a small percentage of the patients. Curettage is apparently of little value.

Based on the theory that an excess of estrogenic substance is responsible for the painful contractions the interior pituitary-like gonadotropic principle of pregnancy urine has been employed for its inhibiting influence. The value of this therapy remains to be determined.



Abdominal exploration in search for hidden lesions together with resection of the presacral nerve is advocated for the most serious cases. Many conservative gynecologists are impressed with the relief afforded by resection of the presacral nerve.

For patients in whom operative intervention appears to be too extreme a measure, codeine may be given in generous doses without fear of creating a habit, morphine should be avoided.

#### INTRAVENOUS ADMINISTRATION OF SOLUTIONS

To the Editor—There are several questions regarding the intravenous administration of various solutions which have evoked considerable differences of opinion. Would you be kind enough to elucidate them for me? 1 What is the optimal rate of flow for administration of dextrose saline solution and arspenamine intravenously? 2 Should the rate of flow vary with the concentration of the solution? 3 At what temperature should the solution enter the vein? 4 To what temperature should the fluid in the containing vessel be heated in order to obtain the desired temperature at the needle point? 5 How should the solution be heated?

LOUIS R. FERRARO, M.D., Bronx, N. Y.

ANSWER—1 Literally drop by drop administration of intravenously injected fluid, or 60 drops per minute is the optimal rate for the introduction of fluid in great bulk.

2 The more toxic or unphysiologic the fluid, the slower should be its rate of injection.

3 With the intravenous drip, the temperature of the fluid entering the vein need not be above the temperature of the room, though, of course, blood temperature (100 F) is optimal.

4 It has been estimated that one may figure on the loss of one degree of temperature per foot of rubber tubing though this is, of course, a mere rough approximation. A sterilizable thermometer-containing glass tube inserted in the rubber tubing near the patient is the most efficient way of observing the temperature of the fluid as it is delivered to the patient.

5 For keeping the solution warm, all sorts of devices have been proposed, from vacuum bottle containers and the partial immersion of a sterilized electric light bulb into the fluid to the use of a heating pad (preferably electric) surrounding the flask or the tubing in its course.

#### TREATMENT OF DIABETES

To the Editor—A white woman aged 58 has had diabetes mellitus about fifteen years. On a restricted diet she can hold her weight and strength and feels well but with this diet it is not possible consistently to keep her sugar free. I also have a patient of 83 with a similar condition. Neither patient takes well to the idea of insulin. Is it possible for elderly diabetic patients to show a little sugar and still be reasonably safe from the danger of coma? Please omit name. M.D. Alabama

ANSWER—It is reasonably safe for patients 58 and 83 years of age to show slight glycosuria and yet avoid coma. On the other hand experience proves that, unless these patients are really under supervision and sugar free a considerable part of the time, they are liable with sudden changes of diet or an infection to develop severe glycosuria and acidosis. The hope for making progress in treating diabetes is to protect and treat thoroughly the mild and the moderately severe cases rather than to neglect them by concentrating on the very severe cases. It is something like the care of wounds on the battle field. The same amount of time and attention necessary to care for a severely wounded soldier with scant outlook for life, if expended on ten slightly or moderately wounded may save ten times as many. Fortunately in peace all diabetic patients can receive attention.

Determinations of blood sugar as well as determinations of the total amount of sugar excreted in the urine in twenty-four hours are most helpful as guides to treatment as regards both diet and insulin.

#### THROMBOANGITIS OBLITERANS

To the Editor—A patient with thromboangitis obliterans does not have diabetes and has gained wonderfully. He has had the trouble for about four months but sleeps and eats well. He refuses an operation. Kindly tell me what theobromine or theophylline preparation I should get to dilate the coronary arteries. M.D. Kansas

ANSWER—Many patients who have thromboangitis obliterans or arteriosclerosis obliterans need no active treatment, as the collateral circulation frequently develops to a point at which the circulatory needs are satisfied. If the arteries of the feet or hands are closely rigid protective measures should be instituted. Great care in trimming the nails, prophylactic measures to prevent trichophytosis and modified measures to treat it, avoidance of applying irritating antiseptic solutions to the skin, preservation of heat in the feet or hands during cold weather, and fre-

quent changing of shoes and hose are simple measures which, if rigorously carried out, frequently prevent trophic ulcers. Interdiction of tobacco is important. Reduction in exercise with lessened wear and tear on the feet should be advised. If an ulcer is present, enforced rest to the affected extremity, frequent soaking in warm physiologic solution of sodium chloride, postural exercise and protein fever therapy are helpful if healing is slow or if there is pain. Sympathetic ganglionectomy may be advisable for protection from future ulcers or gangrene.

Theobromine in doses of 0.3 Gm (5 grains) three or four times a day with equal amounts of soda theophylline ethylenediamine in doses of from 0.2 to 0.3 Gm (3 to 5 grains) and theophylline in doses of from 0.1 to 0.2 Gm (1½ to 3 grains) three times a day, when administered continuously for a long period, seem to have a beneficial effect on the coronary circulation. The use of the newer tissue extracts likewise seems to relieve the symptoms in coronary disease probably not by dilating the coronary vessels but by some metabolic effect on the heart muscle.

#### SPONDYLOLISTHESIS WITH LOW BACK PAIN

To the Editor—A man aged 59 has a marked spondylolisthesis. The articular facets between the fourth and fifth lumbar vertebrae show osteoarthritic changes. The tonsils were removed thirty years ago. The teeth are normal. The gallbladder and the genito-urinary tract are negative. He states that the left ear has discharged intermittently for the last twenty years. The drum is perforated and slight moisture surrounds it. Would the intermittently discharging ear be a focal cause for the osteoarthritis? Kindly omit name. M.D. New York

ANSWER—The osteoarthritic changes in the articular facets between the fourth and fifth lumbar vertebrae might possibly be accommodative structural changes to reinforce these joints in their abnormal relations.

It is more probable, however, that they are true osteoarthritic changes due to focal infection and appearing at a point of unusual stress and shearing strain. It seems likely that the middle ear disease might be a sufficiently active focus to be the cause.

If the low-back symptoms are severe enough to warrant operation, complete relief could probably be attained by fusing the fourth and fifth lumbar vertebrae to the sacrum. This is usually best done by a combination of the Albee and the Hibbs methods. The first recorded operation for spondylolisthesis was performed by the Albee bone-graft method in 1914, as reported by Edwin W. Rycerson (THE JOURNAL, Jan 2, 1915). This patient was seen twenty years later and had had no recurrence of symptoms. Many other successful results have since been reported. The operation itself is not dangerous, even in elderly people.

#### SENSITIVITY TO ARSPHENAMINE

To the Editor—A man aged 35 first came for treatment one year ago with evidences of secondary syphilis. The blood Wassermann reaction was positive. He was given eight intravenous neoarsphenamine (0.6 Gm) treatments. He developed immediately after this a severe exfoliating dermatitis. He was then put on quinine bismuth iodide 2 cc intramuscularly each week. This was continued for two months the skin condition gradually clearing. Then another dose of neoarsphenamine (0.45 Gm) was given. Diarrhea and a severe dermatitis immediately followed and the dermatitis took six months to be relieved. Since then he has stayed on the bismuth preparation intramuscularly each week and occasional series of mercury with chalk 1 grain (0.06 Gm) after meals. The Wassermann reaction at the end of a year is still positive. I am reluctant to give any neoarsphenamine to this patient. There is a new preparation of arsenic which is claimed to be less poisonous than neoarsphenamine. This is called Metpharsen Parke Davis & Co. Would this preparation be safe to try on this very sensitive patient? He is symptom free but the blood Wassermann reaction is positive after the year's treatment. What treatment would be best in your opinion in such a case? Please omit name. M.D. Massachusetts

ANSWER—In a patient who has such a marked hypersensitivity to the arsphenamines, it is not advisable to attempt any further medication with any arsenical preparations. Treatment should be confined to intramuscular bismuth preparations alternating with iodides and mercury. A severe exfoliative dermatitis is much more dangerous than a positive Wassermann reaction.

#### ARGYRIA

To the Editor—What is the danger of argyria following lavage of the kidney pelvis and bladder or both with silver nitrate or any other silver salt? One case has been reported to me but it has not appeared in the literature. My opinion is that the danger is negligible. Will you kindly enlighten me? Please omit name. M.D. Utah

ANSWER—When the correct strength of silver nitrate solution is used in the urinary tract the danger of argyria is remote.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ARKANSAS *Medical (Regular)* Little Rock May 12 13 Sec State Medical Board of the Arkansas Medical Society Dr A S Buchanan  
Prescott *Medical (Electric)* Little Rock May 12 Sec Dr Clarence H Young 207 1/2 Main St Little Rock  
CALIFORNIA *Reciprocity* San Francisco May 13 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento  
MINNESOTA Minneapolis April 21 23 Sec Dr Juhan F Du Bois 350 St Peter St St Paul  
MISSOURI St Louis June 4 6 State Health Commissioner Dr E T McGaugh State Capitol Bldg Jefferson City  
NEBRASKA *Basic Science* Omaha May 5 6 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* May 6 8 June 22 24 and Sept 14 16 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral examination for Group A and B applicants* will be held in Kansas City Mo May 11 12 Sec Dr C Guy Lane 416 Marlboro St Boston  
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Oral clinical and pathological examination of all candidates* will be held in Kansas City Mo May 11 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)  
AMERICAN BOARD OF OPHTHALMOLOGY Kansas City Mo May 11 and New York Sept 26 *All applications and case reports must be filed sixty days before date of examination* Asst Sec Dr Thomas D Allen 122 S Michigan Ave Chicago  
AMERICAN BOARD OF ORTHOPAEDIC SURGERY Kansas City Mo May 11 Sec Dr Fremont A Chandler 180 N Michigan Ave Chicago  
AMERICAN BOARD OF OTOLARYNGOLOGY Kansas City Mo May 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha  
AMERICAN BOARD OF PEDIATRICS Kansas City Mo May 9 Albany N Y June 10 Baltimore and Cincinnati in November Sec Dr C A Aldrich 723 Elm St Winnetka Ill  
AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY St Louis Mo May 8 9 Sec Dr Walter Freeman 1028 Connecticut Ave Washington D C  
AMERICAN BOARD OF RADIOLOGY Kansas City Mo May 8 10 Sec Dr B R Kirklin Mayo Clinic Rochester Minn  
AMERICAN BOARD OF UROLOGY Kansas City Mo May 8 10 Sec Dr Gilbert J Thomas 1009 Nicollet Ave Minneapolis

### New York September Examination

Mr Herbert J Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners in Albany, Buffalo New York and Syracuse, Sept 16-19 1935. The examination covered 9 subjects. An average of 75 per cent was required to pass. Two hundred and twenty-two candidates were examined, 163 of whom passed and 59 failed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
University of Arkansas School of Medicine	(1932)		1
University of Colorado School of Medicine	(1935)		1
Yale University School of Medicine	(1930)		1
George Washington Univ. School of Medicine	(1934)	(1935)	2
Georgetown University School of Medicine	(1933)	(1934 3)	4
Howard Univ. College of Medicine	(1933)	(1934)	3
Emory University School of Medicine	(1934)		1
Loyola University School of Medicine	(1935 4)		4
University of Illinois College of Medicine	(1934)	(1935)	2
University of Louisville School of Medicine	(1935)		1
Johns Hopkins Univ. School of Med	(1931)	(1933)	3
University of Maryland School of Medicine and College of Physicians and Surgeons	(1935 2)		2
Boston Univ. School of Medicine	(1933)	(1934 3)	3
Harvard University Medical School	(1933)	(1934 3)	4
Tufts College Medical School	(1930)	(1934)	2
University of Michigan Medical School	(1931)	(1935)	2
Wayne University College of Medicine	(1935)*		1
University of Minnesota Medical School	(1935)*		1
St Louis University School of Medicine	(1929)	(1934)	2
Washington University School of Medicine	(1934)	(1935)	2
Creighton University School of Medicine	(1935 2)		2
Albany Medical College	(1933)	(1935 4)	5
Columbia Univ. College of Phys and Surgs	(1933)	(1935 4)	4
Cornell University Medical College	(1931)	(1933)	10
Long Island College of Medicine	(1934 6)	(1935 4)	10
New York Homeopathic Medical College and Flower Hospital	(1935 10)		10
New York University University and Bellevue Hospital Medical College	(1934 4)		4
New York University College of Medicine	(1935 3)		3
Syracuse University College of Medicine	(1935 2)		2
University of Buffalo School of Medicine	(1935 4)		4
University of Rochester School of Medicine	(1935)		1
University of Oregon Medical School	(1931)		1
Hahnemann Medical College and Hospital of Philadelphia	(1931)		1
Jefferson Medical College of Philadelphia	(1933)	(1935 2)	3
Temple University School of Medicine	(1934)	(1935 3)	4
Univ. of Penna School of Medicine	(1933)	(1934 2)	4
Woman's Medical College of Pennsylvania	(1934)	(1935)	2

University of Vermont College of Medicine	(1935)	1	
University of Wisconsin Medical School	(1931)	1	
University of Alberta Faculty of Medicine	(1934)	1	
University of Toronto Faculty of Medicine	(1937)	1	
McGill Univ Faculty of Medicine	(1931) (1934) (1935)	3	
Karl Franzens Universität Medizinische Fakultät Graz	(1934)†	1	
(1935)†		2	
Medizinische Fakultät der Universität Wien	(1931)† (1934)†	1	
Universidad de Chile Facultad de Ciencias Medicas	(1978)	1	
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1935 5)†	5	
University of Sheffield Faculty of Medicine	(1935)	1	
Université de Paris Faculté de Médecine	(1934)	1	
Université de Toulouse Faculté de Médecine et de Pharmacie	(1934)†	1	
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1930) † (1931 2) † (1935 2) †	5	
Hamburgische Universität Medizinische Fakultät	(1930)†	1	
Johannes Maximilians Universität Medizinische Fakultät Würzburg	(1933) † (1934)†	2	
Universität Köln Medizinische Fakultät	(1934)	1	
Universität Leipzig Medizinische Fakultät	(1935)†	1	
Magyar Királyi Ferencz József Tudományegyetem Orvostudományi Kara Hungary	(1934)†	1	
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1934)†	1	
Universiteit van Amsterdam Geneeskunde Faculteit	(1933)†	1	
Unwersytet Warszawski Wydział Lekarski	(1922)†	1	
University of Saratov Faculty of Medicine	(1927)†	1	
Licentiate of the Royal College of Physicians of Edinburgh and of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow	(1933) (1934) (1935 2) † (1935)	5	
University of Edinburgh Faculty of Medicine	(1931)	1	
(1934) † (1934) (1935 2)†		5	
University of Glasgow Medical Faculty	(1934)†	1	
University of St Andrews Conjoint Medical School	(1934) †	6	
(1934) (1935 4)†		1	
Universität Basel Medizinische Fakultät	(1934)†	1	
Universität Bern Medizinische Fakultät	(1932) † (1934) †	3	
(1934)		3	
Université de Genève Faculté de Médecine	(1933) † (1935)†	2	
School	FAILED	Year Grad	Num Fail
Georgetown University School of Medicine	(1931) (1934 2)		3
Howard University College of Medicine	(1935)		1
Loyola University School of Medicine	(1935 3)		3
Northwestern University Medical School	(1934)		2
Boston University School of Medicine	(1934 2)		2
University of Michigan Medical School	(1933) (1935)		1
Fordham University School of Medicine	(1918)		2
Long Island College of Medicine	(1934) (1935)		2
New York Homeopathic Medical College and Flower Hospital	(1935)		1
University of Buffalo School of Medicine	(1935)		1
Jefferson Medical College of Philadelphia	(1932)		1
University of Pennsylvania School of Medicine	(1933)		1
Woman's Medical College of Pennsylvania	(1933)		4
(1934) (1935 2)			1
Dalhousie University Faculty of Medicine	(1928)		1
Queen's University Faculty of Medicine	(1931) (1934 2)		3
Medizinische Fakultät der Universität Wien	(1932 2) †		4
(1933) † (1934)†			1
Univerzita Komenského Fakulta Lekarska Cze	(1933)†		1
Licentiate in Medicine Surgery and Midwifery of the Apothecaries Society of London	(1935)†		1
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	(1934)		1
Université de Paris Faculté de Médecine	(1929) † (1935 2)		3
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1930)†		1
Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main	(1933 2)†		2
Ludwig Maximilians Universität Medizinische Fakultät München	(1934)		1
Medizinische Akademie Düsseldorf	(1934)†		1
Universität Köln Medizinische Fakultät	(1932)		1
Westfälische Wilhelms Universität Medizinische Fakultät Münster	(1931)		1
National University of Athens School of Medicine	(1922)		1
National University of Ireland	(1935)†		1
Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia	(1934)		1
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1932) (1934 2) † (1934 2)		5
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1934)†		1
Licentiate of the Royal College of Physicians of Edinburgh and of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow	(1935)†		1
Universität Basel Medizinische Fakultät	(1935)†		1
Universität Bern Medizinische Fakultät	(1935)†		1
Universität Zürich Medizinische Fakultät	(1935)†		1
Université de Genève Faculté de Médecine	(1934)†		1
Nongraduate			1

Two hundred and sixty-three physicians were licensed by endorsement from May 20 through December 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement
College of Medical Evangelists	(1933) (1934)	(1935)†	B M E
Stanford University School of Medicine	(1933) N B M Ex	(1935)	Calif.
University of California Medical School	(1935)		Calif.
Colorado School of Medicine	(1906)		Calif.

University of Colorado School of Medicine (1932) New Jersey  
 Yale University School of Medicine (1929)  
 (1931) (1932), (1933 2) (1934) N B M Ex  
 George Washington University School of Medicine (1908) Vermont  
 (1933) N B M Ex (1934) Maryland  
 Georgetown University School of Medicine (1934 3) Maryland  
 (1933 2) (1934 2) N B M Ex  
 Howard University College of Medicine (1925) New Jersey,  
 (1932) Virginia (1930) (1934) Tennessee  
 Loyola University School of Medicine (1930) (1933) Ohio  
 (1935) N B M Ex  
 Rush Medical College (1905) Minne ota  
 (1921) California (1927) D C (1921) (1927)  
 (1930) Illinois (1925) (1934 2) (1935 2)  
 N B M Ex  
 School of Medicine of the Division of the Biological  
 Sciences (1933) (1935) N B M Ex  
 Indiana University School of Medicine (1928) Ohio  
 (1925) (1928) (1933) (1934 2) Indiana  
 State University of Iowa College of Medicine (1906) Iowa  
 University of Kansas School of Medicine (1929) Kansas  
 Louisville Medical College (1907) Kentucky  
 Tulane University of Louisiana School of Medicine (1928)  
 (1929) Louisiana (1932) N B M Ex  
 Baltimore Medical College (1903) Maryland  
 Johns Hopkins University School of Medicine (1905) Diploma  
 (1927) Connecticut (1927) (1929) N B M Ex  
 (1932) Virginia (1921) (1934) (1935 2) Maryland  
 University of Maryland School of Medicine and Col  
 lege of Physicians and Surgeons (1914) P R  
 (1924) (1930) (1932) (1933) (1934) (1935)  
 Maryland  
 Boston University School of Medicine (1905) Mass (1934) New Jersey  
 Harvard University Medical School (1926) Mass  
 (1930 2) (1931 7) (1932 3) (1933 3) (1934 2)  
 N B M Ex  
 Tufts College Medical School (1926) Mass (1933 2) N B M Ex  
 University of Michigan Medical School (1918)  
 (1919 2), (1925) Michigan (1928) (1932),  
 (1934 2) N B M Ex  
 University of Minnesota Medical School (1929) Minnesota  
 St. Louis University School of Medicine (1933) N B M Ex  
 (1934) Tennessee  
 Washington University School of Medicine (1933) N B M Ex  
 New Jersey (1934) Ohio  
 Creighton University School of Medicine (1932) New Jersey  
 University of Nebraska College of Medicine (1929) N B M Ex  
 Albany Medical College (1929) (1933) (1934) N B M Ex  
 Columbia Univ. College of Physicians and Surgeons (1932) New Jersey  
 (1931) (1932 7) (1933 2) (1934) N B M Ex  
 Cornell University Medical College (1926)  
 (1932) (1933 4), (1934 4) N B M Ex  
 Long Island College of Medicine (1932) New Jersey  
 New York Homeopathic Medical College and Flower  
 Hospital (1932) (1933) (1934 2) N B M Ex (1934) New Jersey  
 New York University University and Bellevue Hos  
 pital Medical College (1932) (1933 2) N B M Ex  
 Syracuse University College of Medicine (1934 2) N B M Ex  
 University of Buffalo School of Medicine (1932) (1934) N B M Ex  
 University of Rochester School of Medicine (1930) Maryland  
 (1932) New Jersey (1929) (1933) N B M Ex  
 Ohio State University College of Medicine (1933 2) (1934) Ohio  
 University of Cincinnati College of Medicine (1928)  
 (1929) (1933) (1935 2) \* (1935) Ohio  
 Western Reserve University School of Medicine (1930) Ohio  
 University of Oklahoma School of Medicine (1917) Oklahoma  
 Hahnemann Medical Col and Hosp of Philadelphia (1934)  
 (1935) Maryland  
 Medico Chirurgical College of Philadelphia (1915) New Jersey  
 Woman's Medical College of Pennsylvania (1925) Penna  
 (1931) (1934) N B M Ex  
 Meharry Medical College (1929) Maryland  
 (1933) North Carolina (1931) (1934 4) Tennessee  
 University of Tennessee College of Medicine (1932)  
 (1933) (1934) (1935) Tennessee  
 Vanderbilt University School of Medicine (1915) Alabama  
 (1929) Tennessee (1933) New Jersey  
 Baylor University College of Medicine (1931) (1935) Texas  
 University of Vermont College of Medicine (1931) (1934) N B M Ex  
 Medical College of Virginia (1930) Virginia (1933) N B M Ex  
 University of Virginia Department of Medicine (1925)  
 (1930) (1932 2) (1935) Virginia  
 Marquette University School of Medicine (1932) Ohio  
 (1934) Wisconsin  
 Queen's University Faculty of Medicine (1919) Saskatchewan  
 University of Toronto Faculty of Medicine (1910) Illinois  
 (1924) (1927) Ontario (1930) Ohio (1934) N B M Ex  
 University of Western Ontario Medical School (1934) N B M Ex  
 McGill University Faculty of Medicine (1921) Quebec  
 (1923) Michigan (1928) California (1933 3)  
 (1934 2) N B M Ex  
 Leopold Franzens Universität Medizinische Fakultät  
 Innsbruck Austria (1922)  
 University of Liverpool Medical School Fakultät  
 Albert Ludwigs Universität Medizinische Fakultät  
 Freiburg (1907) † (1926) † Germany  
 Albertus Universität Medizinische Fakultät  
 Königsberg (1924) † Germany  
 Christian Albrechts Universität Medizinische Fakultät  
 Kiel (1924) † Germany  
 Friedrich Alexanders Universität Medizinische Fakul  
 tät Erlangen (1924) † Germany  
 Friedrich Wilhelms Univer stat Medizinische Fakultät  
 Berlin (1912) † (1919) † (1922) † (1924) † (1926) †  
 (1927 2) † (1928) † (1933) † Germany  
 Humboldt Universität Med Fakultät (1923) † (1924) † Germany  
 Heussche Ludwigs Universität Medizinische Fakultät  
 Gießen (1921) West Virginia (1926) † Germany  
 Johann Wolfgang Goethe Universität Medizinische  
 Fakultät Frankfurt am Main (1917) † (1926) † Germany

Julius Maximilians Universität Medizinische Fakultät  
 Würzburg (1915) † (1925) † (1927) † (1928) † Germany  
 Ludwig Maximilians Universität Medizinische Fakul  
 tät München (1923) † (1933) † Germany  
 Schlesische Friedrich Wilhelms Universität Medizinische  
 Fakultät Breslau (1902) † (1924) † (1926) † Germany  
 Thüringische Landesuniversität Medizinische Fakultät  
 Jena (1928) † Germany  
 Universität Heidelberg Medizinische Fakultät (1913) †  
 (1921) † (1924) † (1925) † Germany  
 Universität Köln Medizinische Fakultät (1919) † Germany  
 Universität Rostock Medizinische Fakultät (1920 2) † Germany  
 Westfälische Wilhelms Universität Medizinische Fakul  
 tät Münster (1927) † Germany  
 Magyar Királyi Pazmany Petrus Tudományegyetem  
 Orvosi Fakultása Budapest (1924) † Hungary  
 Regia Università degli Studi di Roma Facoltà di  
 Medicina e Chirurgia (1933) New Jersey  
 Regia Università di Napoli Facoltà di Medicina e  
 Chirurgia (1925) Italy (1931) Maryland  
 Regia Università di Torino Facoltà di Medicina e  
 Chirurgia (1933) Maryland (1933) † New Jersey  
 Latvijas Universitāte Medicīnas Fakultāte Latvija (1929) † Latvia  
 Universiteit van Amsterdam Geneeskunde Faculteit (1922) † Netherlands  
 Universidad de Sevilla Spain (1931) Puerto Rico  
 American University of Beirut School of Medicine (1935) N B M Ex

\* This applicant has received an M B degree and will receive an  
 M D degree on completion of internship  
 † Verification of graduation in process

## Book Notices

Health and Human Progress. An Essay in Sociological Medicine. By  
 René Sand. Lecturer at the University of Brussels. Preface by Edouard  
 Herriot. Cloth. Price \$3. Pp 278. New York: Macmillan Company,  
 1936.

The author of this volume is enamored of the term sociologi-  
 cal, which is indeed a fine round word to roll on the tongue.  
 In his opening chapter he delivers himself of a grandiose,  
 utopian conception of sociological medicine which includes socio-  
 logical obstetrics, sociological pediatrics, sociological psychiatry,  
 sociological dermatology, urology and gynecology, not to over-  
 look phthisiology, neurology, epidemiology, cardiology and  
 stomatology. "Each branch of medicine has its sociological  
 aspect." Precisely so, but not set off by itself in a glorified  
 sociological pigeonhole. Each branch of medicine has always  
 had its sociological aspect, and the great physicians of all time  
 have been those who have been social philosophers and leaders  
 in the great sociological reforms which M Sand eulogizes as  
 if the physician had little or nothing to do with them, except  
 perhaps with their imperfections, as in his contemptuous dis-  
 missal of errors in reporting of causes of death "due to family  
 prejudices or negligence and indifference on the part of the  
 doctors." The author admires "the profound researches and  
 carefully weighed conclusions of the Commission [sic] on the  
 cost of medical service in the United States" without apparently  
 realizing the fundamental differences between the majority and  
 the minority reports. Chapters are devoted to the social  
 classes, "their physical and mental inequality, and their inequality  
 in respect to sickness and death. The influence of health on  
 human progress is discussed from the standpoint of heredity,  
 environment, occupation, domestic factors, economic factors,  
 sanitary and educational factors and human economics. There  
 is an extensive sociological bibliography and an index. An  
 introduction by M Edouard Herriot summarizes M Sand's  
 program as one to make progress serve us instead of enslave  
 us." The author's program is a broad collectivism which will  
 extend into all phases not only of health but of all human  
 progress. With his underlying objective the conservation of  
 human capital and the broadening of human life by better wages  
 and more consideration in commerce and industry for the human  
 being, no reasonable person would take issue. There remain  
 many, however, who will not be willing to sacrifice their indi-  
 vidual independence and initiative, which may indeed bring them  
 suffering today, but always with an opportunity for glory  
 tomorrow, for regimented health movements, regimented educa-  
 tion, regimented thinking, regimented lives even with garden  
 cities, maternity canteens, day nurseries, soviet-dietetic meals  
 and civic and social centers where all will have free and equal  
 servings from the milk and honey of the promised land. Regi-  
 mentation is not as happy a word as sociological, but apparently  
 it means about the same.

*Traité de chirurgie d'urgence* Par Félix Lejars. Refondu par Pierre Brocq, professeur agrégé à la Faculté de médecine de Paris avec la collaboration de Robert Chabrut. In two volumes. Ninth edition. Cloth. Price 200 francs per set. Pp 686 689 1299 with 1 250 illustrations. Paris: Masson & Cie 1936.

It will be a great gratification to all surgeons and students to learn that despite Lejars' lamentable death in 1932 his splendid *Chirurgie d'urgence* did not perish with him. Since the eighth edition published in 1921, Lejars had contemplated the preparation of a new one. Fatigue and illness prevented this cherished desire and when he recognized its impossibility he entrusted the task to his colleague Pierre Brocq and to Robert Chabrut, who have produced a splendid revision. The realistic stimulating and even dramatic descriptions of Lejars have not been sacrificed. The first personal pronoun is no longer present but the spirit of the old master is felt on every page. The illustrative cases are still present. Much new material has been added to bring the work down to date. Most of the illustrations have been entirely redrawn and many new ones have been added including pertinent roentgenograms. Obsolete material has been omitted. Urgent surgery is not to be confused with minor surgery. The many grave conditions of the different regions of the body due to accident or disease, which require prompt attention are carefully considered from the standpoint of diagnosis and treatment. At times the authors find it difficult to stay within the confines prescribed by the title, but these deviations enhance rather than detract from the work. While in some few matters American opinion might differ with the French, in the main the book is well written, well illustrated, and based on a wealth of experience. It is recommended with confidence.

*Behavior Development in Infants. A Survey of the Literature on Prenatal and Postnatal Activity 1920-1934.* By Evelyn Dewey. Published for the Josiah Macy Jr. Foundation. Cloth. Price \$3.50. Pp 321. New York: Columbia University Press 1935.

Behavior is defined for the purpose of this summary as "the neuromuscular and glandular reactions of living human organisms." Unfortunately the social and emotional development has not been included because "there is as yet no satisfactory theory of the process underlying strictly objective neuromuscular behavior patterns." But not all human responses emerge from drives, gestalt or mental factors. The purpose of the survey was to select salient results for correlation with the research program of the Child Development Clinic at the Neurologic Institute. Studies of child development are essentially descriptive in terms of age levels. This summary is of necessity under the group headings of fetal, neonatal and infant behavior.

The progressive development of the various growth patterns is evaluated from conception. Evidence abounds that the reactions of premature infants are not different from infants born at term. But behaviorists credit the environment with initiating behavior. Their contention is that most postnatal responses are learned with the exception of a few labeled "unconditioned." The gestaltists contend that behavior patterns are present at birth and that specific behavior develops from a fundamental relation, oriented within the organisms, to the external world. It is known however that some types of behavior have been completely developed in utero, other types have begun to develop and have reached different levels of growth at birth, and still others are not developed until after birth. Extreme versions of behaviorists suffer because they explain too much. They suggest that the child is fabricated out of conditioning patterns. They do not give due recognition to the internal regulatory mechanisms which delimit conditioning and which happily prevent grotesque consequences and which the theories themselves would make too easily possible. On the other hand, the rigid views of gestaltists exclude environmentalism as markedly affecting developmental patterns. Although it is artificial to present a distinction between intrinsic and extrinsic factors it must be granted that growth is a function of the organism rather than of the environment as such. Maturation suggests stabilizing factors that safeguard the basic patterns of growth. Demonstration of determining factors is inconclusive. Few studies have thus far been made tracing the development of any one behavior pattern from earliest reactions to the fully developed ones of the mature being.

No sharp developmental break exists in the transition from fetal to neonatal and from that to infant life. There is, however, a period of latency which corresponds to the accepted principles in the development of neural structures. It is not yet possible to determine whether all types of behavior are controlled during all their different growth stages by the same mechanism. The early stepping movements for example, might then be linked to the period of walking by the latent transition from the cortical to the subcortical progression only when the organism is physiologically ready to effect purposive walking. Development of any one pattern appears to be progressive and gradual with probably latent periods if not actual regression, during which some other pattern is developing at an accelerated rate. Development of one pattern does not proceed to the exclusion of others but all are progressing simultaneously at different rates with vastly different ages for maturity and with different periods of accelerated growth.

The complex of varied growth during infancy becomes even more difficult of interpretation. Patterns have not been traced from the reaction occurring at birth to the fully developed form. The method of tracing the emergence of differentiated reactions from total behavior is just beginning to be applied. Unfortunately, most of the literature is still concerned with a single stage in the development of any one pattern, the appearance of a specific type of reaction rather than with the progressive stage leading up to and including the particular skill. Behavior development for the individual means adequate adjustment to the environment for the support of life independently. Yet the course of development has not been particularly investigated from this purposive basis.

The literature on infant behavior has been assimilated and interpreted lucidly. Nevertheless it is impossible to present an adequate picture of the total growth pattern or of the fundamental processes underlying it. The difficulties to be overcome are clearly indicated by the author. The evidence available supports no one of the current theories of behavior. The author veers toward the gestalt school with particular emphasis on the role of maturation of the nervous system.

*Lehrbuch der inneren Medizin* Von Professor Dr. Theodor Bruch, o. Professor der Medizin an der Martin Luther Universität Halle-Wittenberg. In two volumes. Third edition. Paper. Price 50 marks 55 marks. Pp 796 with 177 illustrations. 797 1628 with 218 illustrations. Berlin & Vienna: Urban & Schwarzenberg 1936.

In the preface to this edition of his textbook on internal medicine the author states that he eliminated all superfluous material to make the book more compact, and yet the two volumes contain 1,628 pages. Many changes have been made especially in the chapters on neurologic diseases and intestinal disorders, and the entire text has been brought down to date. Space allotted each disease was justly selected according to the practical importance of the subject. The statement that there is no pure race in Europe is apparently not in harmony with the opinion of the government of the country where this work has been published. Each chapter begins with a brief description of the normal and pathologic anatomy and physiology of the organ discussed. Numerous reproductions of photographs, roentgenograms and also colored charts supplement the text. The growing tendency in this country to provide an adequate amount of carbohydrates and to decrease the fat intake by diabetic patients is apparently not shared by the author. Several omissions have been noticed, e.g. relative avitaminoses, the use of viofilm and carbarsone in amebic dysentery, the Kahn test in syphilis, the value of phonocardiography in heart diseases and of bronchoscopy in lung cancer, the use of mucin in gastric ulcers, decompression with the indwelling catheter and the merits of intravenous injections of hypertonic saline solutions in intestinal obstruction and various methods of production of artificial heat superseding inoculation with malaria. Recommendation of proprietary drugs detracts greatly from the usefulness of the book for foreign readers. The immense wealth of material makes the work encyclopedic in character, so that it can be considered rather as a reference book than as a text book. Undoubtedly it is one of the most important works on this subject published in recent years in the German literature. It offers an excellent picture of the latest conceptions of continental internists on many problems of internal medicine.

**La pratique stomatologique** Publiée sous la direction du Dr Chompret  
III Technique chirurgicale bucco-dentaire Par les Drs Chompret  
Dechaume et Richard Clohir Price 15 francs Pp 283 with 174 illustrations Paris Masson & Cie 1935

This volume is the third of a nine volume set and deals with the surgical technique of the oral cavity. The other volumes are I Pathology of Mouth and Surrounding Tissue II Dental Pathology IV Operative Dentistry V Removable Prostheses VI Crowns and Bridges VII Orthodontia VIII Restorations and Prostheses of Maxilla and Face IX Radiography. Each volume is written by various men who are engaged in the practice of the various specialties enumerated and the illustrations and texts form a summary of their years of experience. The system is intended for both students and practitioners. The first part of this volume is given to the anatomy of the various regions of the head and neck. The second part is devoted to the operating room, including preparation of surgical material, sterilization, and preoperative and postoperative treatment. The third part is devoted to anesthesia general, local and regional. The fourth deals with extraction of teeth and roots, with instrumentation applicable to each. The extraction of children's teeth is considered especially. The fifth part outlines the extraction of unerupted teeth, curettage and amputation of tooth roots including most operations done by the oral surgeon, including fractures and tumors. The sixth part includes surgery of the soft parts. The last part considers surgery of congenital and acquired disorders. The book is profusely illustrated by drawings showing the anatomic relations of various tissues, together with instruments and the technique of their uses.

**Tumors of the Urinary Bladder** By Edwin Beer MD FACS Visiting Surgeon Mount Sinai Hospital New York City Cloth Price \$3.50 Pp 166 with 52 illustrations Baltimore William Wood & Company 1935

This monograph is based on an exhaustive study of tumors of the urinary bladder carried on over a period of twenty-three years. It is divided into twelve chapters and begins with a historical sketch as a foundation. The chapter on pathology is particularly interesting and instructive. Here the author has been assisted by members of his staff, and their personal experiences add much to its value. The chapters on treatment include a discussion of the various methods of approach and give a clear description of operative technique with excellent illustrations. In these chapters one obtains good statistical data and here the author shows an open mind and gives the reader the benefit of his conclusions based on a wide experience. The book contains an excellent bibliography. This work is a valuable addition to urologic literature and is recommended to the urologist, pathologist and general practitioner.

**Common Skin Diseases** By A. C. Roxburgh MA MD BCh Physician in charge of the Skin Department and Lecturer on Diseases of the Skin St Bartholomew's Hospital General Practice Series Third edition Cloth Price 15s Pp 377 with 148 illustrations London H. K. Lewis & Co Ltd 1936

Roxburgh has prepared a third edition of his book in view of the exhaustion of the second edition within sixteen months of its issue. He has added a brief article on gold dermatitis, Besnier's prurigo, recurrent cellulitis and diet in lupus vulgaris. Eleven illustrations have been added, and these together with the colored plates are excellent supplements to the succinct descriptions in the text. The book deals only with the common skin diseases. Stress is laid on differential diagnosis and the chapter on the index of preliminary diagnosis for students is worthy of special mention. For a readable well illustrated small textbook of common skin diseases it has many features to recommend it as a useful book for students.

**The Osteopathic Lesion** By George Macdonald MB ChB DO and W. Hargrave Wilson DO Cloth Price 7s 6d Pp 141 with 5 illustrations London William Heinemann Ltd 1937

This was intended by the authors, one of whom is both a Bachelor of Medicine and a Doctor of Osteopathy as a defense of the practice of osteopathy. Even after reading it one cannot obtain an entirely clear understanding of just what the authors mean by the "osteopathic lesion." The authors emphasize that osteopathy is not a process of manipulation or a procedure that

is useful in every condition of ill health. They briefly discuss the anatomy of the spine, the physiologic considerations which they consider to be of osteopathic importance, the osteopathic lesion itself, which they consider to be a result of trauma initiating the somatovisceral reflex, and the effects of repeated trauma, usually on a spinal joint with associated changes in ligaments and soft tissue structure. The effect of the lesion may be localized, peripheral, visceral or general. In the final chapter an attempt is made to describe the osteopathic treatment which is supposed to relieve not only the primary condition but also the secondary phenomena. The reasoning is highly theoretical. Even attempting an attitude of fairness, there does not appear to be any justification for this book. The result of reading it has simply added conviction that osteopathy accomplishes its results largely by the psychic effect on the patient, who is impressed by the fact that something is being done.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Hospitals Liability to Visitor for Injury Due to Fall on Polished Floor**—The plaintiff, while visiting the defendant hospital, slipped on the waxed linoleum covered floor of the hallway of the hospital and fractured her arm. She sued the hospital, and when the trial court directed a verdict against her, she appealed to the Supreme Court of Mississippi, Division B.

The owner or person in control of a building, said the Supreme Court, such as a hospital, must exercise reasonable care to construct and maintain the floors in the building so that they will be reasonably safe for those who have the right to use them. If, as in the present case the danger complained of is one that is entirely open and visible, the doctrine of *res ipsa loquitur* does not apply. The proprietor is not an insurer but is liable only for negligence. An owner or proprietor charged with negligence as to an appliance, way or method is not liable when he complies with the customary, generally recognized standards employed by careful and prudent men in the same business or occupation. In the present case the evidence showed that the type of linoleum on the floor had been for a long time in common and general use, under substantially the same method of maintenance, in stores, office buildings and other buildings where members of the public are invited to visit and do visit. The evidence further showed that the linoleum had been regularly cleaned and waxed, according to the directions of the manufacturer, and that this was the first injury that had occurred from its use. The court could see no reason for applying a rule of liability to hospitals different from the rule applicable to other buildings visited by the public and consequently affirmed the verdict for the hospital.—*Daniel v. Jackson Infirmary (Miss)*, 163 So 447.

**Embalmers Inherent Right of Board to Revoke a License, Causes for Revocation Must be Specifically Stated**—The plaintiff, a licensed embalmer, employed an unlicensed person to embalm a body for him. The Oklahoma state board of embalmers notified the plaintiff that he had thereby violated the board's rules and regulations and that on a certain date the board would determine if his license should be revoked. The plaintiff sought to restrain the board from proceeding against him but the trial court denied the relief sought and the plaintiff appealed to the Supreme Court of Oklahoma. He contended among other things, that the embalming act conferred on the board no authority to revoke a license and that therefore the board was without jurisdiction to proceed against him.

The embalming act said the Supreme Court does not expressly provide for the revocation of licenses. It does confer on the board authority to adopt rules and regulations whereby the performance of the duties of said board and the practice of embalming dead bodies, and the conduct of schools for teach-



ing embalming, shall be regulated" The plaintiff contended that the power given by the act to the board to promulgate rules and regulations did not authorize the board to cancel his license or to adopt rules for such purpose. There is considerable authority, the court said, supporting the plaintiff's contention and it finds reinforcement in the fact that in analogous acts the legislature has generally expressly granted the power of revocation of licenses and prescribed the grounds and manner of revocation, as in the case of accountants, barbers, dentists, architects, graduate nurses physicians and others. But even assuming, the court said, without deciding, that the conferment on the board of power to make rules authorized it to provide for the revocation of licenses, the board adopted no rule expressly prohibiting a licensed embalmer from employing an unlicensed assistant to embalm bodies under his order and direction. Any rules adopted by the board providing for the revocation of licenses must specify the acts constituting the basis or cause of revocation with such reasonable clarity and particularity as to enable a licensee to determine in advance of his acts whether or not they will violate the rules and be capable of becoming the basis of a proceeding for the revocation of his license. So far as the rules of the board in the present case fail in this respect, the court said, they are void. The board is not authorized to proceed under a rule setting forth a general and indefinite power of revocation.

The court held, therefore, that the board in instituting proceedings to revoke the plaintiff's license acted outside the scope of its jurisdiction and attempted to exercise unauthorized judicial powers. The judgment of the trial court was reversed with direction to grant the plaintiff the relief sought.—*Moore v. Vincent (Olla)* 50 P (2d) 388

**Workmen's Compensation Acts** **Compensability of Neurosis**—Under the Arizona workmen's compensation act says the Supreme Court of Arizona, for a worker to obtain compensation for a neurosis following an industrial accident it must be shown that that neurosis was the result of some injury sustained in the accident.

In this case the worker while employed in sulfide ore mines had to run four or five hundred feet to reach fresh air when the mine shaft in which he was working accidentally became filled with smoke, sulfur gas and dust. The exertion and the inhalation of those substances caused him to choke, cough, vomit and lose his breath. He suffered temporary pulmonary disorders and inflammation of the respiratory organs and of his eyes. Subsequently he developed a neurotic condition, which the industrial commission in granting him compensation under the workmen's compensation act, found was traceable in part to circumstances arising out of and immediately following his alleged injury. The employer appealed to the Supreme Court of Arizona.

The workmen's compensation act of Arizona said the Supreme Court clearly contemplates that an injury to an employee by accident is compensable whatever that injury may be. Mental or physical suffering which does not lessen the employee's ability to work and earn wages is not compensable the theory of the law being to remunerate or compensate the employee to the extent of disablement by reason of his injury. The injury may be a disease and a neurosis is a disease. To entitle an employee to compensation for disability from a disease, however the disease must result from or be produced or aggravated by an injury. If the commission had found that the employee's neurosis was caused by an injury sustained in an accident then the award of compensation would have been proper. While the commission in its findings did not so state, the court said the only conclusion to be drawn from the findings is that the commission believed the employee's neurosis was not induced by any personal injury he suffered, but by a fear or apprehension of imaginary ailments that might follow as a result of his injury and the deplorable condition in which his family might be left. There was medical testimony to sustain such a conclusion. There being no finding that the employee's neurosis was the result of an injury, the award was set aside.—*Phelps Dodge Corporation v. Industrial Commission (Ariz)* 49 P (2d) 391

## Society Proceedings

### COMING MEETINGS

- American Medical Association Kansas City Mo May 11-15 Dr O. West, 535 North Dearborn St Chicago Secretary
- Alabama Medical Association of the State of Montgomery Apr 21 Dr D L Cannon 519 Dexter Avenue Montgomery Secretary
- American Academy of Pediatrics Kansas City Mo May 11-15 Dr Clifford G Grulee 636 Church St Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Kansas City Mo May 11 Dr Loring T Swaim 377 Marlboro St Boston Secretary
- American Association for the Study of Gout Chicago June 8-10 Dr W Blair Mosser 133 Biddle St Kane Pa Corresponding Secretary
- American Association for Thoracic Surgery Rochester Minn May 14 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary
- American Association of the History of Medicine Atlantic City N J May 4 Dr Edward J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency St Louis May 14 Dr Groves B Smith Beverly Farms Godfrey Ill Secretary
- American Bronchoscopic Society Detroit May 27 Dr Lyman Richards 319 Longwood Ave Boston Secretary
- American Dermatological Association Swampscott Mass June 4-6 Dr Fred D Weidman Medical Laboratories University of Pennsylvania Philadelphia Secretary
- American Gastro Enterological Association Atlantic City N J May 15 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Asheville N J May 23-27 Dr Otto H Schwarz 630 S Kingshighway Blvd St Louis Secretary
- American Heart Association Kansas City Mo May 12 Dr H M Marvin 50 West 50th St New York Acting Executive Secretary
- American Laryngological Association Detroit May 25-27 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Denver May 18-20 Dr C Stewart Nash 708 Medical Arts Building Rochester N Y Acting Secretary
- American Neurological Association Atlantic City N J June 13 Dr Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society Hot Springs Va June 13 Dr J Milton Griscorn 255 South 17th St Philadelphia Secretary
- American Orthopedic Association Milwaukee May 18-21 Dr Ralph K Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Detroit May 28-29 Dr Thomas J Harris 104 E 40th St New York Secretary
- American Pediatric Society Bolton Landing N Y June 11-13 Dr Hugh McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctologic Society Kansas City Mo May 11-12 Dr Curtis Rosser Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association St Louis May 4-8 Dr William C Sandy State Education Building Harrisburg Pa Secretary
- American Radium Society Kansas City Mo May 11-15 Dr E H Skinner 1103 Grand Ave Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 4 Dr J M Hayman Jr Lakeside Hospital Cleveland Secretary
- American Society for the Hard of Hearing Boston May 26-30 Miss Betty C Wright 1537 35th St N W Washington D C Secretary
- American Society of Clinical Pathologists Kansas City Mo May 6-10 Dr A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Chicago May 7-9 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Kansas City Mo May 8-9 Dr Oscar B Hunter 1835 Eye St N W Washington D C Secretary
- American Urological Association Boston May 18-21 Dr Clyde I Deming 789 Howard Ave New Haven Conn Secretary
- Arizona State Medical Association Nogales Apr 23-25 Dr D F Harbridge 15 East Monroe Street Phoenix Secretary
- Arkansas Medical Society Hot Springs National Park Apr 21-23 Dr W R Brooksher 602 Garrison Ave Fort Smith Secretary
- Association for the Study of Allergy Kansas City Mo May 11-15 Dr Warren T Vaughan 803 Professional Bldg Richmond Va Secretary
- Association for the Study of Internal Secretions Kansas City Mo May 11-12 Dr E Kost Shelton 34 Micheltorena St Santa Barbara Calif Secretary
- Association of American Physicians Atlantic City N J May 15-16 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Coronado May 25-28 Dr F C Warnshuis 450 Sutter St San Francisco Secretary
- Connecticut State Medical Society Hartford May 20-21 Dr Charles W Comfort Jr 27 Elm Street New Haven Secretary
- District of Columbia Medical Society of the Washington D C May 6 Dr C B Conklin 1718 M St N W Washington D C Secretary
- Florida Medical Association S S Florida Apr 27-29 Dr Shal Richardson 111 West Adams St Jacksonville Secretary
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- Illinois State Medical Society Springfield May 19-21 Dr Robert L Camp 202 Labl Building Monmouth Secretary
- Iowa State Medical Society Des Moines Apr 29 May 1 Dr Robert L Parker 3510 Sixth Ave Des Moines Secretary
- Louisiana State Medical Society Lake Charles Apr 27-29 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore Apr 25-27 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary
- Massachusetts Medical Society Springfield June 8-10 Dr Alexander S Begg 8 The Fenway Boston Secretary
- Medical Library Association Rochester Minn May 25-27 Miss Ja Doe 2 E 103d St New York Secretary
- Medical Women's National Association Kansas City Mo May 10-11 Dr Laila A Coston Conner 333 East 68th St New York Secretary
- Minnesota State Medical Association Rochester May 3-6 Dr E A Meyering 11 West Summit Ave St Paul Secretary



Mississippi State Medical Association Greenville May 57 Dr T M Dye McWilliams Building Clarksdale Secretary  
National Tuberculosis Association New Orleans Apr 22-23 Dr Charles J Hatfield 7th and Lombard streets Philadelphia Secretary  
New Hampshire Medical Society Manchester May 26-27 Dr Carleton R Metcalf, 5 S State St Concord Secretary  
New Jersey Medical Society of Atlantic City June 24 Dr J B Morrison 66 Milford Ave Newark Secretary  
New Mexico Medical Society Carlsbad May 68 Dr L B Cohenour 219 West Central Ave Albuquerque Secretary  
New York Medical Society of the State of New York Apr 27-29 Dr Daniel S Dougherty 2 East 103d St New York Secretary  
North Carolina Medical Society of the State of Asheville May 4-6 Dr L B McBrayer Southern Pines Secretary  
North Dakota State Medical Association Jamestown May 17-19 Dr Albert W Skelsey 20½ Broadway Fargo Secretary  
Rhode Island Medical Society Providence June 3-4 Dr J W Leech 167 Angell St Providence Secretary  
South Carolina Medical Association Greenville Apr 21-23 Dr E A Hines Seneca Secretary  
South Dakota State Medical Association Sioux Falls May 4-6 Dr John F D Cook Langford Secretary  
Texas State Medical Association of Houston May 25-28 Dr Holman Taylor 1404 W El Paso St Fort Worth Secretary  
West Virginia State Medical Association Fairmont June 8-10 Mr Joe W Savage Public Library Bldg Charleston Executive Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

26 239 482 (Feb.) 1936

- \*Neoplasms in Cryptorchids W G Christoffersen and S E Owen Hines Ill—p 239  
Angiosarcoma Case Report and Review of Literature E B Freilich and G C Coe Chicago—p 269  
Experimental Alteration of Malignancy with Homologous Mammalian Tumor Material III Concerning Filtrability of Material A E Casey Charlottesville Va—p 276  
Effects of Coal Tar and Other Chemicals on Roots of Allium Cepa M Levine and H Bergmann New York—p 291  
Teratoma of Testis with Tridermal Metastases Case Report J E Smadel St Louis—p 316  
Studies in Carcinogenesis I Production of Tumors in Mice with Hydrocarbons M J Shear Boston—p 322  
Id II Detection of Dibenzanthracene in Mouse Tumors Induced by This Hydrocarbon E Lorenz and M J Shear Boston—p 333  
Properties of Causative Agent of Chicken Tumor VII Ultraviolet Light Absorption Spectrum of Purified Chicken Tumor Extracts Containing Active Principle A Claude and A Rothen New York—p 344  
\*Study of Enzyme Content of Parenchymatous Adenocarcinoma of Pancreas and Comparison with Normal Human Pancreas K Sugiura G T Pack and F W Stewart New York—p 351  
Growth of Human Fibroblasts in Mediums Containing Various Amounts of Thyroxine J P M Vogelaar and Eleanor Erlichman New York—p 358  
Morphology of Sarcomas Produced by 1 2 5 6 Dibenzanthracene C D Hargensen and O F Krehbiel New York—p 368  
Mesothelial Tumors C F Geschickter Baltimore—p 378

**Neoplasms in Cryptorchids**—Owing to the obscure nature of tumors of undescended testicles, an early diagnosis has been difficult. With the use of the quantitative follicle stimulating factor test it seems unquestionable that they can be recognized in an early stage, long before marked clinical symptoms have developed. Christoffersen and Owen would suggest that this test be used in all cases presenting suggestive histories. It is not so much, however, the positive observation which is important as it is the steady increase in output of gonadotropic substance in these cases when they are untreated. Some of the teratomas of the mixed adult type may be extremely resistant to irradiation. Accurate histologic classification should therefore be attempted for it is well known that the seminoma group is relatively radiosensitive. A decrease in the follicle stimulating factor following irradiation indicates sensitivity to irradiation, although some cases which should be radiosensitive histologically still show a high gonadotropic substance test. Such cases always have a grave prognosis. In

following these patients after discharge it is possible to utilize for purposes of assay specimens sent by mail. Mailing tubes equipped with 3-ounce bottles each containing one drop of trieresol as a preservative, are supplied to the discharged patients at regular intervals. In this manner at least one type of cheek can be obtained on the distant patient. Five case reports are given, showing the typical observations.

**Enzyme Content of Adenocarcinoma of Pancreas**—Sugiura and his co-workers obtained a large amount of pancreatic tumor from a specimen removed at operation. The tumor was a large solid parenchymatous adenocarcinoma occupying the tail and much of the body of the pancreas. Despite its large size it was not necrotic and no metastases were found. This pancreatic tumor was studied from the physiologic point of view and its enzyme content was compared with that of three normal human pancreases. The amylolytic action on starch, the proteolytic action on casein and pectone and the lipolytic action on seven esters of the four specimens was determined. Under comparable conditions the rate of digestion of starch, the degree of protein hydrolysis and the degree of hydrolysis of esters by the extracts of the pancreatic tumor were essentially the same as for normal pancreas. The 'pictures' of the relative ester-hydrolyzing actions of the two tissues were similar. The studies suggest that this tumor had a physiologic as well as a morphologic resemblance to normal human pancreas.

### American Journal of Diseases of Children, Chicago

51 239 498 (Feb.) 1936

- \*Changes in Type of Landry's Paralysis T Tanaka Yamaguchi Japan—p 229  
Method of Preserving Breast Milk Study of Its Clinical Application L A Scheuer and Jessie E Duncan New York—p 249  
Blood in Stools of the New Born B E Bontr Salt Lake City—p 255  
\*Absorption of Carotene W Heymann Cleveland—p 273  
\*Recurrence of Pneumonia in Infancy and in Early Childhood with Especial Reference to Prognosis D Greene New York—p 284  
Sugar Content of Mother's Blood After Fasting Its Relation to Birth Weight of Infants E B Woods Augusta Ga—p 297  
Effects on Fetus of Hypervitaminosis D and Calcium and Phosphorus Deficiency During Pregnancy L W Sontag P Munson and E Huff Yellow Springs Ohio—p 302  
Substances Involved in Coagulation of Blood of the New Born Infant V Studies of Fibrinogen Marian M Crane and H N Sanford Chicago—p 311  
Weight of Thymus and Its Component Parts and Number of Hassall Corpuscles in Health and in Disease Edith Boyd Minneapolis—p 313  
Hair Plucking A Blevier St Louis—p 336

**Changes in Type of Landry's Paralysis**—Tanaka observed that the clinical symptoms and course of Landry's paralysis (fourteen cases) in the Yamaguchi district have gradually changed during the last four years. Cases of the typical form, with peripheral paralysis of the spinal nerves were seen first. The paralysis was severe and recovery was not obtained for many months. Next appeared a type characterized by severe spontaneous pain in the joints muscles and skin of the paralyzed portion of the body on passive and active movement and on pressure. However, the intensity of the paralysis and of the atrophy of the muscles was not severe, and recovery was obtained more quickly than in the earlier cases. The most recent type has been characterized by severe paralysis of the cranial nerves but the pain has been less intense and recovery from the paralysis has been more prompt. In short the type of disorder noted during the four years has progressed gradually from involvement of the peripheral nerves to that of the central nervous system.

**Absorption of Carotene**—Heymann shows that the degree to which carotene is metabolized cannot be considered constant even in one and the same healthy child. Infections greatly diminish the intestinal absorption of carotene. Children with chronic infections should therefore be given foods rich in carotene or carotene solution in oil in amounts larger than those usually prescribed. Clausen recommended that preference be given to vitamin A which seems to be more easily absorbed. The diminished absorption of carotene during infections is not caused by fever as such but is more likely due to some until now unknown toxic factor. The fact that from ten to fourteen days after the last day on which fever was present a marked decrease in the absorption of carotene may still be present

shows that intestinal function may still be disturbed and therefore justifies again an old pediatric rule, namely, that special care should be taken in the feeding of infants even for two weeks after an infection has subsided. The fact that infections in infants who were not suffering from diarrhea were found to interfere with intestinal function (digestion of fat, absorption of carotene) may throw light on the still unsolved problem of the etiology of the so-called parenteral dyspepsias.

**Recurrence of Pneumonia in Childhood**—During a period of eleven years there occurred at Greene's institution 561 cases of pneumonia. Eighty children suffered 202 attacks of pneumonia. In 50 per cent of the children who had more than one attack of pneumonia the initial attack occurred during the first year of age, in contrast to 38 per cent of the group of patients having a single (primary) attack of pneumonia. The sexes were about equally divided. There were fifty-two children who had two attacks, eighteen who had three, seven who had four, two who had five and one who had six. In the present study of the recurrent attacks of the disease there were 138 cases of lobar pneumonia and sixty cases of bronchopneumonia. In the cases analyzed, it is found that in 67 per cent of the recurrences the character of the lesion was of the same nature as in the first attack. In thirty-three of the cases of recurrent pneumonia the lesion occurred on the same side and in thirty-four on the side opposite that involved in the first attack. There are exceptional instances. Analysis of the non-fatal cases showed the illness to have terminated in from three to five days in twenty-nine, in from six to ten days in forty-nine, in from eleven to fifteen days in twenty-six and in sixteen days or more in six. The recurrence was of the same duration as the initial attack in 26 per cent of the cases. In 31 per cent the recurrence was longer and in 43 per cent it was shorter than the primary attack. The mode of termination in the recurrent attack was similar to that of the primary attack, regardless of type, in 63 per cent of the cases. There were seven deaths from lobar pneumonia or bronchopneumonia in the recurrent cases, giving a mortality rate of 35 per cent as compared with a rate of 167 per cent in the group of primary cases of pneumonia of both types. In each fatal case of recurrent pneumonia there was some important contributing factor, or the preceding attack was unusually severe. The low death rate is remarkable, particularly as half the patients were less than 1 year of age at the time of the first attack. Although allowance must be made for the small number of cases dealt with in the fourth, fifth and sixth attacks, the tendency is for the mortality rate to become less and less with each subsequent attack. In other words, the patients with recurrent pneumonia are probably a select group since they are able to withstand repeated attacks of pneumonia either because of natural resistance or because of some acquired immunity.

### American Journal of Public Health, New York

26 95 218 (Feb.) 1936

- Poliomyelitis in North Carolina in 1935 C V Reynolds and J C Knox Raleigh N C—p 95  
 Poliomyelitis in Virginia During 1935 I C Riggan Richmond Va—p 98  
 Anterior Poliomyelitis in Kentucky During 1935 A T McCormack and F W Caudill Louisville Ky—p 101  
 Poliomyelitis in Tennessee W C Williams Nashville Tenn—p 103  
 Poliomyelitis in Charlottesville Va and Adjacent County of Albemarle W W Waddell Jr and C W Purcell University, Va—p 104  
 Results of Field Studies with Poliomyelitis Vaccine A G Gilham and R H Onstott Washington D C—p 113  
 Active Immunization Against Poliomyelitis M Brodie and W H Park New York—p 119  
 Vaccination Against Acute Anterior Poliomyelitis J A Kolmer Philadelphia—p 126  
 Immunity in Virus Diseases with Particular Reference to Poliomyelitis T M Rivers New York—p 136  
 Improved Method of Preparing Kolmer Poliomyelitis Vaccine J A Kolmer Philadelphia—p 149  
 Social Significance of Industrial Medicine H H Kessler Newark N J—p 158  
 Efficiency of Methods and Products for Sterilization of Beverage Glasses E D Devereux and W L Mallmann East Lansing Mich—p 165  
 Shellfish Report from Standpoint of Control of Shellfish in Interstate Shipment A C Hunter Washington D C—p 167  
 Psychologic Factors of Health Education I Galdston New York—p 171  
 Water Pollution Abatement in the United States H R Crohurst Cincinnati—p 176

### American Journal of Surgery, New York

71 397 596 (March) 1936

- Observations on Behavior of Systemic Blood Pressure Pulse and Systolic Fluid Pressure Following Craniocerebral Injury J Broder and R Meyers Brooklyn—p 403  
 Benign Tumors of Stomach E S Judd and M T Hoerner Rochester Minn—p 427  
 Economic Aspects of Industrial Fractures Study of Two Thousand and Thirty Eight Cases A D Lazenby, Baltimore—p 431  
 Biologic Basis of Surgery Particularly Orthopedic Surgery G W Hawley Bridgeport Conn—p 438  
 Importance of Group Treatment in Modern Therapy of Tumors of Neck and Neck A T Holding Albany N Y—p 454  
 Sodium Ethyl (1 Methyl Butyl) Thiobarbiturate Preliminary Experimental and Clinical Study T W Pratt A L Tatum H R Hahnaway and R M Waters Madison Wis—p 464  
 Uses of Falciform Ligament in Surgery of Upper Abdomen M Thorek Chicago—p 467  
 Granulosa Cell Tumor of Ovary Report of Two Additional Cases S A Wolfe and S Kaminester Brooklyn—p 471  
 Femoral Bone Lengthening R Anderson Seattle—p 479  
 Vesicovaginal Fistula New Method of Postoperative Treatment and Simplified Method of Uterocystostomy R C Chaffin Los Angeles—p 484  
 \*Technic of Treatment of Acute Empyema Thoracis R B Bettman Chicago—p 489  
 Intestinal Obstruction Treatment by Reinforced Sphingone Modification of Wangensteens Method J L Carmichael and J L Guffy, Birmingham Ala—p 495  
 \*Gastro-Intestinal Polyps Statistical Study of Malignancy Incidence J C Lawrence Chicago—p 499  
 Improved Method of Intestinal Anastomosis G B Maurer Margaretville N Y—p 506  
 Traumatic Appendicitis M W Shutkin and S H Wetzler Milwaukee—p 514  
 Cancer Points of Rectum and Sigmoid A H Weitkamp Los Angeles—p 521  
 Postoperative Complications and Sequels of Peptic Ulcers R E Church New York—p 523  
 Some Observations and Deductions of Ileostomy in Low Acute Mechanical Obstruction Report of Series of Cases A A de Poto Jamaica N Y—p 526  
 Prophylactic Use of Ergot and Ergotamine Tartrate in Puerperium S H Livingston and S G Blum Brooklyn—p 533  
 Wound Disruption H Koster and L P Kasman Brooklyn—p 537

**Treatment of Acute Empyema Thoracis**—Bettman has used a form of treatment for acute empyema for which he uses a Pezzar catheter and irrigation. He has not yet seen a case of chronic empyema develop in a patient in whom the catheter has been left in place until the cavity was obliterated. The insertion of the catheter is readily accomplished and practically as easy as a simple aspiration. It is true that the after treatment requires meticulous care and unless this is given the closed method of treatment will not be successful. Patients should be hospitalized and under the constant attention not only of a surgeon conversant with this form of treatment but of interns and nurses as well. During the early days of the treatment, particular watchfulness is necessary to guard against the stoppage of drainage by mucous plugs, and the aspiration of air into the pleura from either a leak in the system or neglect in keeping the drainage catheter under the fluid level. As the patient becomes stronger, the latter part of the treatment may be carried out in his home. The duration of the drainage varies not only with individuals but especially with the seasonal differences in the type of infection. However, the pseudomembrane having been removed and the intercostal incision immediately sutured, the closed method can then be carried out successfully. In these patients the duration of postoperative drainage was, as a rule, exceedingly short.

**Gastro-Intestinal Polyps**—Lawrence found the incidence of polyps in 7,000 necropsies to be 33 per cent. Microscopic study of only those polyps which macroscopically appeared suspicious showed malignant transformation in 65 per cent. Speaking for the possibility of a direct relationship to polyp is an additional 12 per cent of carcinomas associated with polyps. The number of polyps more closely approaches the number of malignant conditions in the sigmoid and rectum than in any other region of the gastro-intestinal tract. This relationship is least striking in the small intestine and in the transverse colon. Polyps are found most frequently in persons between 50 and 60 years of age, and in the group more than 40 years of age white males were 157 times more commonly affected than white females, 15 times more than Negro males and 25 times more than Negro females. Polyps were approximately twelve times more common in the colon than in the small intestine.

## Annals of Internal Medicine, Lancaster, Pa

9 1043 1170 (Feb.) 1936

- Growth and Development of Function in Blood Vessels and Lymphatics  
E R Clark Philadelphia—p 1043
- Present Status of Bronchoscopy in Bronchial Asthma L H Clerf  
Philadelphia—p 1050
- Prognosis in Acute Glomerular Nephritis A B Richter Boston—  
p 1057
- Effectiveness of Sippy Regimen in Neutralizing Gastric Juice of  
Patients If Amount of Alkali Is Not Varied P H Woska Chicago  
and E S Emery Jr Boston—p 1070
- \*Value of Mixture of Powdered Milk and Alkali for Neutralizing Gastric  
Acidity of Patients with Peptic Ulcer P H Woska Chicago and  
E S Emery Jr Boston—p 1078
- \*Studies in Hypertension Proposed Classification of Hypertension Based  
on Nitrogen Distribution of Serum Proteins H A Rafsky A  
Bernhard and G I Rohdenburg New York—p 1091
- \*Sedimentation Time in Acute Cardiac Infarction C Shookhoff A H  
Douglas and M A Rabinowitz Brooklyn—p 1101
- Combined Medical and Surgical Management of Peptic Ulcer with  
Emphasis on Treatment of Hemorrhage J W Thompson and H W  
Soper St Louis—p 1106
- Observations on Effect of Sudden Changes in Arterial Tension in Angina  
Pectoris E W Bitzer Tampa, Fla—p 1120
- Practical Use of Hobbies in Practice of Medicine J R Hamilton  
Nassauvold, Va—p 1129

## Use of Powdered Milk and Alkali in Peptic Ulcer—

Woska and Emery believe that their modification of the Sippy regimen will retain the value of the treatment and eliminate the many feedings, which is the main disadvantage of the Sippy treatment. They investigated the effect of powdered milk on the gastric juice, for if this could be substituted for whole milk and cream it would be a simple way for a patient to take an alkalinized milk product. They compared the effect on the gastric acidity of 90 cc of whole milk and cream with the effect of 125 Gm of powdered milk. The results were similar with the two preparations although with the powdered milk the free acidity drops toward the end of the day to a level slightly below that obtained with whole milk and cream. The total acidity was much the same in the two instances. They next compared the effect of an alkalinized powdered milk with the usual Sippy treatment. They mixed 0.6 Gm of calcium carbonate and 2 Gm of sodium bicarbonate with the 125 Gm of powdered milk and the entire mixture was given to the patient in 90 cc of water. Water was allowed in small quantities, usually in the form of cracked ice in addition to the milk and alkalis. The free acidity remained low under both methods. The curve for total acidity was the same whether whole milk and cream or powdered milk was used. The total acidity was less when no alkali was given. The results obtained on patients in the fourth week of treatment are charted. The patients were receiving the same kind of treatment as on the seventh day with the exception that the six feedings had been changed to three meals. They were encouraged to be up and around the wards in order to approximate as closely as possible the conditions under which they would live after leaving the hospital. Hourly feedings of alkalinized milk powder controlled the gastric acidity about as well as whole milk and cream with powders given on the half hour. In the individual patient alkalinized powdered milk reduced the gastric acidity to zero in a much higher proportion of instances than with the routine Sippy treatment. A comparison of the efficacy of the routine Sippy treatment with the alkalinized powdered milk shows that 90 cc of milk and cream and of powdered milk without alkali were equally efficacious. Milk and cream adequately controlled 47 per cent of the patients compared to 50 per cent on powdered milk. However when alkalis were added the alkalinized powdered milk gave much more satisfactory results. On the first day, 75 per cent were adequately controlled with alkalinized powdered milk as opposed to 54 per cent by the routine Sippy treatment. On the seventh day the figures were 94.1 per cent by alkalinized powdered milk as opposed to 71 per cent by the routine Sippy treatment and on the fourth week 94.1 per cent as opposed to 57 per cent.

**Hypertension Based on Nitrogen Distribution of Serum Proteins**—Rafsky and his associates observed changes from the normal in 84 per cent of seventy-six cases of hypertension in either the basic amino or monamino nitrogen fractions of the blood serum proteins or in both these fractions. The change in 23 per cent was in both fractions, in 18 per cent only the basic amino nitrogen was altered, in 42 per cent

the monamino nitrogen alone was changed and in 15 per cent no change was demonstrable. Based on these chemical changes, a classification of cases of hypertension is proposed. In the cases of hypertension with a low basic amino nitrogen, there was little or no evidence of nephritis. A review of the clinical aspects of the cases of hypertension having increased monamino nitrogen showed in the greater majority of the patients a mild degree of nephritis without retention of the nonprotein nitrogenous constituents. In the group of hypertensive cases in which both nitrogenous fractions deviated from the normal there was usually evidence of marked nephritis with nitrogen retention in the blood to a varying degree.

**Sedimentation Time in Cardiac Infarction**—Shookhoff and his collaborators studied the sedimentation times (Linzmeier) in twenty-nine cases of acute coronary thrombosis confirmed by electrocardiography. Of nine patients who died, necropsies were obtained in five and an acute coronary thrombosis was found. The sedimentation time was abnormally rapid at some time during the course of the disease in all the cases. Even when the diagnosis is clear they believe that it is of definite value to follow the sedimentation time. They have found it to be a sensitive indicator of subsequent thrombosis in the heart or elsewhere or of embolus or infection. It enables one also to estimate the rapidity of healing. At the present time there is no definite evidence that the rapidity of the sedimentation time is proportionate to the extent of the damage in the heart but it seems justifiable to assume that, while the determination is abnormal, active changes are taking place in the heart muscle. The sedimentation time makes less arbitrary the duration of rest in bed for a particular case and a patient with an acute coronary closure should be kept in bed at least until this determination has returned to normal. Before a cardiac significance is attached to a rapid sedimentation rate, a search should be made for infection and infarction outside the heart.

## Archives of Otolaryngology, Chicago

23 139 266 (Feb.) 1936

- Medical Aspects of Aviation Alma C Smith Quinceo, Va—p 139
- Malignant Tumors of Epipharynx S Slinger and S J Pearlman  
Chicago—p 149
- Manifestations of Leukemia Encountered in Otolaryngologic and  
Stomatologic Practice A A Love Los Angeles—p 173
- \*Primary Skin Graft in Modified (Bondy) Radical Mastoidectomy for  
Prevention of Hearing in Cases of Genuine Cholesteatoma G E  
Shambaugh Jr Chicago—p 222

**Primary Skin Graft in Modified (Bondy) Radical Mastoidectomy**—Shambaugh asserts that the Bondy modification of radical mastoidectomy is indicated in cases of cholesteatoma in which the perforation is limited to Shrapnell's area (genuine cholesteatoma in Witmaack's classification). The use of the primary skin graft hastens complete epithelization and prevents troublesome granulations thus favoring preservation of the hearing. In two cases of genuine cholesteatoma in the ear with the better hearing in which surgical intervention was required the Bondy modification of radical mastoidectomy with the use of a primary skin graft resulted in completely epithelized dry cavities in twenty-five and in thirty-two days and not only preserved but appreciably improved the hearing in the ear on which operation was performed.

## Arch of Physical Therapy, X-Ray, Radium, Chicago

17 63 128 (Feb.) 1936

- Prevention of Deformity and Disability Its Underlying Mechanical  
and Physiologic Principles A I Hart Minneapolis—p 71
- Prevention of Disability in Fractures W I Fries Jr Lehigh  
Pa—p 82
- Hallux Valgus Postoperative Physical Therapy T P Brookes  
St Louis—p 87
- Paraffin Osmotic Compresses (Schubert) F Nagelschmidt London  
England—p 96
- Status of Diathermy in Pneumonia H E Stewart New Haven Conn  
—p 98
- Trachoma Treated by Zinc Ionization Preliminary Report S M  
Edison Chicago—p 102
- Combination Electric Suture Needle and Electrotome G M Blech  
Chicago—p 107
- Fever Therapy Apparatus R F Alt and Luella E Patterson  
Santa Barbara Calif—p 108

**Trachoma Treated by Zinc Ionization**—Edison states that in all clinical stages of trachoma zinc ionization produced complete arrest in thirty-one cases about 70.5 per cent of those

given four treatments, one each at weekly intervals. Amelioration of all subjective symptoms, with notable beginning regression of the follicles and cicatrization, was obtained in nine cases, about 20.5 per cent. Four patients (9 per cent) did not respond to the treatment. In seven patients, no recrudescence occurred after eighteen months of apparent cure. Zinc ionization was employed in the acute or chronic stages and in the presence of corneal ulcer or pannus. The course of the disease was shortened in all cases. None of the thirty-one patients discharged required further active treatment after the tenth week. Since the electrodes are in contact throughout the treatment with the entire conjunctiva including the fornices, lids, inner and outer canthi and the caruncle, the entire pathologic area is reached during each ionization. No complications or sequels resulted from the treatments.

### Canadian Public Health Journal, Toronto

27 53 104 (Feb.) 1936

- Diphtheria Prevention Methods and Results J. G. Fitzgerald Toronto—p. 53  
Periodic Health Examination from Various Points of View H. M. Harrison Toronto—p. 61  
Clinical and Radiologic Aspects of Silicosis A. R. Riddell, Toronto—p. 67  
Problem Children, Their Parents and Teachers C. C. Stoddill Toronto—p. 73  
Industrial Dermatoses E. J. Irow Toronto—p. 77  
Destruction of Pure Cultures of the *Escherichia Aerobacter* Group in Milk Pasteurization V. E. Graham Saskatoon Sask.—p. 81  
Incidence of Bovine Bacillus in Lesions Found in Man M. H. Brown Toronto—p. 88

**Bovine Bacillus in Lesions in Man**—Brown states that from a total of 241 strains of tubercle bacilli isolated from various lesions in man residing in various parts of the province of Ontario 233, or 96.68 per cent, were of the human type and eight, or 3.32 per cent, were of the bovine type. The highest incidence of the bovine type occurred in strains isolated from spinal fluid, 10.2 per cent being the bovine type. In no instance was the bovine type isolated from the pulmonary system.

### Florida Medical Association Journal, Jacksonville

22 335 392 (Feb.) 1936

- Observations on Mechanism and Treatment of Circulatory Failure E. W. Bitzer Tampa—p. 349  
Florida Medical Association and Public Health H. L. Bryans Pensacola—p. 353  
After Cholecystectomy T. F. Hahn De Land—p. 355  
Fungous Infections of Hands and Feet W. M. Sams Miami—p. 360  
Early History of Vaccination Against Smallpox in Southeastern Part of the United States Corrections and Additions V. H. Bassett Savannah Ga.—p. 363

### Georgia Medical Association Journal, Atlanta

25 39 78 (Feb.) 1936

- Carcinoma of Colon Case Report F. K. Boland Atlanta—p. 39  
Jaryngeal Tuberculosis J. C. Roughlin Atlanta—p. 44  
Tubercle Meningitis Report of Case E. R. Pund and F. H. Van Wagoner, Augusta—p. 48  
Relation of Drugs to the Leukopenic State R. R. Kracke and F. P. Parker, Atlanta—p. 51  
Scientific Management of Anal Fissure C. E. Hall Atlanta—p. 57  
Chronic Cough R. C. Pendergrass Americus—p. 60  
Intradural Tumors Report of Case J. C. Weaver Atlanta—p. 61  
Treatment of Paralytic Muscles by Active and Passive Exercise and Importance of Diet Report of Case M. F. Carson Griffin—p. 63

**Relation of Drugs to Leukopenia**—Kracke and Parker assert that it seems reasonable that all drugs containing the benzene ring with the amine attachment are potentially capable of producing the leukopenic state in both men and lower animals. These include mainly aminopyrine, dimetophenol and acetphenetidin and the gold salts have been reported as producing the disease in cases of tuberculosis. The gold salts have as their central structure this benzamine ring with the attached gold molecule. Arsphenamine is capable of producing the disease as well as other forms of bone marrow aplasia. Arsphenamine has for its central structure a double benzene ring with the arsenic attached, and it seems probable that its depressant action is due to its benzamine structure. Many questions have arisen in connection with the drug relationship to agranulocytosis and one of these has been its mechanism

of action. A summation of opinions indicates almost unanimous agreement that benzene ring drugs produce agranulocytosis. There is ample evidence to indicate a close relationship between leukopenic states in agranulocytosis and other blood dyscrasias. The increasing number of cases of myeloid leukemia that eventuate into the aleukemic state illustrates the tremendous range of bone marrow activity that may be seen in the same patient. Patients having aplastic anemia and aleukemic leukemia should be carefully questioned as to ingestion or contact with benzamine ring substances. One may become poisoned with benzene by inhalation, ingestion or injection.

### Journal of Bacteriology, Baltimore

31 109 216 (Feb.) 1936

- Latent Infections K. F. Meyer San Francisco—p. 109  
Growth of Butanol Clostridium in Relation to Oxidation Reduction Potential and Oxygen Content of Medium G. Knayski and S. P. Dutky Ithaca N. Y.—p. 137  
Effect of Atmospheres of Hydrogen Carbon Dioxide and Oxygen Respectively and of Mixtures of These Gases on Growth of Bacterial Substrates P. P. Levine Ithaca N. Y.—p. 151  
Cultural Requirements of Fowl Coryza Bacillus O. W. Schalm and J. R. Beach Berkeley Calif.—p. 161  
Comparison of Media for Detection of *Escherichia Aerobacter* L. L. Black and Mary Elizabeth Klinger College Park Md.—p. 171  
Influence of Oxygen Tension on Respiration of Pneumococci (Type I) C. Schlayer, Durham, N. C.—p. 181  
Role of Bacteria in Antilyzing Tissue J. R. Reeves and H. E. Martin Indianapolis—p. 191  
Studies on Bacterial Pigmentation I. Historical Considerations R. D. Reid State College Pa.—p. 205  
Variations in Electrophoretic Mobilities of *Escherichia Aerobacter* Intermediate Strains K. P. Dozois Baltimore—p. 211

### Journal of Pediatrics, St. Louis

8 135 276 (Feb.) 1936

- Use of Blood Coagulant Extract from Human Placenta in Treatment of Hemophilia R. C. Eley Arda Alden Green and C. F. McKibbin with assistance of I. Kapnick and Harriet F. Coady Boston—p. 135  
Acute Lymphocytic Meningitis? J. A. Toomey Cleveland—p. 148  
Antirachitic Value of Irradiated Evaporated Milk and Irradiated Whole Fluid Milk in Infants (Inpatient Study) V. Rapoport and J. Stokes Jr. Philadelphia—p. 154  
Irradiated Evaporated Milk in Prevention of Rickets T. G. H. Driskell and F. Tisdall and A. Brown Toronto—p. 161  
Incidence of Common Contagious Diseases Without Quarantine in Pediatric Service of Fifth Avenue Hospital Camille Keresztes and Hauptman W. H. Park and F. Bartlett, New York—p. 166  
Growth of Thirty Two External Dimensions During the First Year of Life H. Bakwin and Ruth Morris Bakwin New York—p. 171  
Comparative Value of Schilling Differential Blood Count and Sedimentation of Erythrocytes in Acute Rheumatic Fever in Children J. L. Rogatz New York—p. 184  
Papilloma of Choroid Plexus in an Infant A. Blever and W. J. Siebert St. Louis—p. 193  
Simple Mechanical Method for Treatment of Enuresis in Male Children J. Glaser and D. B. Lundau Rochester N. Y.—p. 197  
Atresia of Vagina in Children P. Nowlin and J. R. Adams Chicago N. C.—p. 200  
Calcified Abdominal Glands in Children Clinical Study C. A. Seeger and F. D. Ames Boston—p. 205  
Essay on Rattles E. Caulfield, Hartford Conn.—p. 226

**Blood Coagulant Extract from Placenta in Treatment of Hemophilia**—Eley and his collaborators have observed a striking difference in the results with tissue protein extract prepared from the human placenta and those reported from the use of animal tissue preparations in the treatment of patients with hemophilia. Animal tissue extracts have shortened the coagulation time of the blood of patients with hemophilia for very brief periods whereas human placental extracts have reduced the clotting time of both venous and capillary blood for periods varying from forty-eight hours to as long as nine days. Despite repeated slight trauma incident to active childhood two children with hemophilia have been able to lead normal, active lives for periods of several months by the continued administration of this material at carefully regulated intervals. In fifteen cases of hemophilia reported, the blood coagulant extract has been well tolerated by oral administration or by intramuscular injection. It must be emphasized that this blood coagulant extract is fatal when injected intravenously in patients with hemophilia. Therefore in using this material in patients with hemophilia intravenous injection must be avoided as this route is unfortunate, if not fatal, results might ensue. Eleven of the fifteen children with hemophilia have shown a satisfactory response to either the oral or the intramuscular administration.

of the extract, as evidenced by a reduction of the coagulation time to within ten minutes, which the authors take as the upper limit of normal. In the other four instances there was a reduction in the coagulation time, but the end point was not sufficiently low to consider the effect as satisfactory as in the other group of cases.

**Acute Lymphocytic Meningitis**—The attention of Toomey was attracted to this disease by its rapid epidemic spread in an orphanage which housed 360 male children from 3 to 16 years of age and sixty-five adults. The symptoms of the disease were excruciating headache, anorexia with nausea or vomiting or both, pain in the epigastrium on palpation, a low grade fever, a throat moderately or severely inflamed, some pain on movement of the head, a total white count perhaps lower than usual, but if normal, in most cases with a relative increase in the circulatory lymphocytes, negative neurologic signs, a spinal fluid pleocytosis with lymphocytes predominating in the severely affected case and a hemolytic streptococcus that was easily isolated from the throats in a small proportion of the cases. It appears to the author that this may be a new syndrome or a more severe manifestation of acute aseptic meningitis. It should be kept in mind and differentiated from poliomyelitis.

### Journal of Pharmacology & Exper Therap, Baltimore

56 117 264 (Feb.) 1936

- Studies on Pharmacology of Ethyl Alcohol. I. Comparative Study of Pharmacologic Effects of Grain and Synthetic Ethyl Alcohols. II. Correlation of Local Irritant Anesthetic and Toxic Effects of Three Potable Whiskeys with Their Alcoholic Content. O. W. Barlow in collaboration with A. J. Beams and H. Goldblatt. Cleveland—p. 117.
- Opiate Addiction in the Monkey. I. Methods of Study. M. H. SeEVERS. Madison Wis.—p. 147.
- Id. II. Dilaudid in Comparison with Morphine, Heroin and Codeine. M. H. SeEVERS. Madison Wis.—p. 157.
- Study of Analgesia, Subjective Depression and Euphoria Produced by Morphine, Heroin, Dilaudid and Codeine in the Normal Human Subject. M. H. SeEVERS and C. C. Pfeiffer. Madison Wis.—p. 166.
- Trypanocidal Action of Azo Dyes. A. St. G. Huggitt and S. F. Suffolk. Leeds, England—p. 188.
- Simple Method of Demonstrating Changes in Blood Supply of Ear and Effects of Some Measures. P. J. Hanzlik, F. DeEds and B. Terada. San Francisco—p. 194.
- Ether Anesthesia. Changes in Serum Potassium Content During and Following Anesthesia. B. H. Robbins and Helen A. Pratt. Nashville, Tenn.—p. 203.
- Effect of Diphtheria Toxin on Vitamin C Content of Guinea Pig Tissues. C. M. Lyman and C. G. King. Pittsburgh—p. 209.
- Studies on Pharmacology of Nitrite Effect of Bismuth Subnitrate. E. J. Steiglitz and Alice E. Palmer. Chicago—p. 216.
- Studies on Dinitrophenol. I. Effects of Dinitrophenol on Deglycogenized Rats. B. L. Taussig. St. Louis—p. 223.
- Id. II. Some Effects of Dinitrophenol on Heart. B. L. Taussig. St. Louis—p. 228.
- Pseudohermia. Visible Manifestation of Local Anesthetic Action. S. Loewe. New York—p. 238.
- Dihydromorphine Hydrochloride (Dilaudid). Its Tranquilizing, Potency, Respiratory Depressant Effects and Addiction Liability as Tested on Rat. E. J. Stanton. Cleveland—p. 252.

### Medical Annals of District of Columbia, Washington

5 29 58 (Feb.) 1936

- The Heart as a Surgical Organ. C. S. Beck. Cleveland—p. 29.
- Unknown Factors in Etiology of Infections. L. P. Shipp. Washington—p. 36.
- Present Conception of So Called Chronic Cystic Mastitis. A. Horwitz. Washington—p. 39.
- Fundamentals of Internal Medicine. Diseases of the Nervous System. A. Schneider. Washington—p. 42.

**So Called Chronic Cystic Mastitis**—In discussing the relation of so called chronic cystic mastitis to malignant condition Horwitz states that every one agrees that conditions of the breast described as mazoplasia are benign. The cystic states of the breasts may be divided into the nonhyperplastic type in which the lining epithelium is flattened and atrophic and even absent, and the hyperplastic type, in which there is formation of intracystic papillomas, the so called papillary cystadenomas. Opinion on the relation of these cysts to malignant conditions is divided into three groups. 1 Those who agree with Cheate and Cutler that all cystic disease of the breast is precancerous and should be treated radically. 2 Those who agree with Bloodgood who from clinical experience has concluded that there is no relationship between cystic disease of the breast and malignancy. 3 Those who consider the nonhyperplastic cystic

states as benign and who would treat radically only those cysts which show hyperplasia. Kilgore believes that although the preponderance of evidence is in favor of Bloodgood's concept, a good deal of clinical judgment should be used in the treatment of hyperplastic cystic disease. If it occurs in a woman at an age when the breast function is no longer important and the incidence of cancer is apt to be high, the sacrifice of the breast would be logical. One could be more conservative in the case of younger patients unless a malignant condition is definitely suggested or if a large portion of the breasts is involved. In the light of recent study of the physiology of the breast, painful lumps or 'shotty' breasts are the result of disordered function and can be treated conservatively with attention to the secretions of the ovary and pituitary glands.

### Michigan State M. Society Journal, Grand Rapids

35 75 154 (Feb.) 1936

- Common Lesions of Cervix. N. F. Miller. Ann Arbor—p. 75.
- \*Sanitary Control of Diseases Where Alcoholic Beverages Are Sold. C. H. Benning. Royal Oak—p. 79.
- Meanderings in Ophthalmology. L. L. Mayer. Chicago—p. 81.
- Medical Practice in Sweden. B. H. Lars. Detroit—p. 86.
- Prevention of Cancer. F. G. H. Maloney. Ironwood—p. 90.
- Blastoma of Adrenal. Case Report. W. Le Fevre. Muskegon—p. 94.
- Nonmyxedematous Hypothyroidism. Helene Emeth Schutz. Ann Arbor—p. 97.
- Cancer Survey of Michigan. F. L. Rector. Evanston Ill.—p. 99.

**The Lack of Sanitation in Beer Gardens**—Benning points out that a recent sanitary survey of beverage establishments undertaken by Mallmann and Devereux brought to light the following insanitary conditions: 1 Few establishments in which beer or liquor was sold were attempting proper care in the handling of glassware. 2 Few places in the entire city had satisfactory glassware. 3 Many were not even provided with running water at the dispensing bar. Some were merely dipping the glasses in a pail of water which was changed at infrequent intervals. 4 In a few wash sinks were located in back rooms inaccessible to the bar. 5 Appearance of the bar and the wash sinks showed plainly that even rinsing the glasses in water was a rare occurrence in some cases. The author suggests the following sanitary measures for beer gardens, restaurants and places in which alcoholic beverages are sold in rural areas which do not come under a full time health department or where no such ordinance exists even if a full time health department is in operation: 1 The person or persons who are to work in these places must obtain a certificate of health from the health department. This food handler's permit shall consist of an examination for venereal disease, tuberculosis and any other communicable disease. In addition all workers must be examined to determine whether or not they are typhoid carriers. 2 The conditions existing in the beer garden, restaurant, barbecue or other such place must be sanitary and arranged for the bodily well being of patrons as approved by the health department where one exists or by some public health agency to be designated. 3 The washing facilities for glasses, dishes or other eating utensils must be such as will be approved by the state department of health and local health authorities. The author believes that the menace to the health of the people under present conditions in the majority of drinking places is remediable at a cost not out of proportion to the benefit to be obtained.

### New England Journal of Medicine, Boston

214 277 340 (Feb. 13) 1936

- Total Thyroidectomy for Heart Disease. Experience with Twenty One Patients at the Massachusetts General Hospital. R. J. Clark, J. H. Means and H. B. Sprague. Boston—p. 277.
- Contribution of the Community Hospital to Better Medical Service. P. P. Johnson. Beverly, Mass.—p. 29.
- Emotion and Diarrhea. V. J. Sullivan. New Haven, Conn.—p. 299.
- Treatment of Burn. G. C. Penberthy. Detroit—p. 301.
- Heart in Rheumatic Fever. C. L. Derier. Portland—p. 310.

**Emotion and Diarrhea**—Sullivan reviews the early medical views on simple diarrhea, presents observations from the literature on this psychomotor phenomenon and discusses recent work on the etiologic relationship of emotion to certain diarrheas usually considered organic in origin. Nervous diarrheas, organic diarrheas, mucous colitis and ulcerative colitis are dis-



cussed, and indications for future investigations are given which suggest that, if the colon is substituted for the tear glands and diarrhea for weeping, an idea will be had of how the problem should be attacked. The author does not believe that psychologic studies will provide the answers to all the questions. There is much to be done on the somatic side—the mechanisms involved in the hyperperistalsis, the hypersecretion of mucus and the production of ulceration have still to be solved. There is plenty of scope for investigators who will continue the work so ably begun by Cannon, Alvarez and Cushing. However, in the care of patients there is an immediate need for physicians interested in the psychic investigation and treatment of such psychosomatic disorders. In this group are included not only diarrheal diseases but also essential hypertension, the exophthalmic syndrome, gastric and duodenal ulcer and cardiospasm.

### Pennsylvania Medical Journal, Harrisburg

39 297 384 (Feb.) 1936

- Anginal Heart Failure H. M. Marvin New Haven Conn.—p. 297  
Diagnosis and Prognosis of Coronary Occlusion Electrocardiogram as an Aid J. B. Vander Veer and L. E. Brown Jr. Philadelphia—p. 303  
Latent Nonvalvular Congestive Heart Failure A. P. D. Zmura Pittsburgh—p. 309  
The Management of the Patient with Essential Hypertension E. Weiss Philadelphia—p. 313  
Importance of Venesection and Venous Pressure to the General Practitioner H. F. Robert on Philadelphia—p. 319  
Age Incidence and Mortality in Coronary Occlusion Review of Four Hundred Cases W. L. Mullins Pittsburgh—p. 322  
Remote Symptoms in Upper Respiratory Infection J. B. Price Norris town—p. 325  
Malaria Treatment of Paresis R. F. I. Ridgway Harrisburg—p. 329  
Observations on Ophthalmology of the Near East H. W. George Middleton—p. 334  
Treatment of Thoracic Empyema by Aspiration and Air Replacement Report of Four Cases B. J. McCloskey Johnstown—p. 336  
Resistant Syphilis with Especial Reference to an Attempt to Produce Experimentally an Arsenic Resistant (Neosphenamine Resistant) Strain of Spirochaeta Pallida S. S. Greenbaum and Anna V. Rule Philadelphia—p. 339

### Philippine Journal of Science, Manila

58 299 426 (Nov.) 1935 Partial Index

- Nutritive Mineral Value of Philippine Food Plants (Calcium Phosphorus and Iron Contents) J. Marañon Manila—p. 317

### Public Health Reports, Washington, D. C.

51 181 202 (Feb. 21) 1936

- The Place of Mental Hygiene in Federal Health Program W. L. Treadway—p. 181

51 203 240 (Feb. 28) 1936

- \*Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into Nostrils C. Armstrong and W. T. Harrison—p. 203

**Prevention of Intranasal Infection with Neurotropic Viruses**—Armstrong and Harrison compared the efficacy of various agents but found from 0.32 to 0.64 per cent trinitrophenol (picric acid) either alone or combined with alum to be superior to 4 per cent alum and to be the most satisfactory and efficient experimental agent. In the concentration and amounts employed it was devoid of detectable general or local injurious effects on animals. Sixteen applications sprayed by means of an atomizer into the nostrils of the authors produced no detectable injurious effects. They believe that the acid exerts its protective effects locally either by rendering the mucous membranes less permeable to infection or possibly by a direct action on the virus itself or both. Its use does not prevent the development of specific immunity in mice following a subsequent intranasal instillation of encephalitis virus. The acid given to mice one and two days before one and two days after or on the same day as the virus instillation led to a decreased susceptibility to the virus in all instances as compared with non-prepared controls. The protective effect of 0.32 per cent trinitrophenol is apparent against intranasally inoculated poliomyelitis for at least from four to seven days following its last administration. Intranasally instilled chemicals effective in preventing encephalitis in mice have been found effective against poliomyelitis in monkeys suggesting that the former may be utilized as an indicator in a further search for more effective prophylactic agents in the latter ailment.

### Radiology, Syracuse, N. Y.

26 1 130 (Jan.) 1936

- Present Mode in Deep X-Ray Therapy (Coutard) F. W. O'Brien Boston—p. 1  
Benign Tumors of Stomach Observations on Their Incidence and Malignant Degeneration L. G. Rigler Minneapolis and L. G. Erickson Dubuque Iowa—p. 6  
Study of Cones or Other Collimating Devices Used in Roentgen Therapy Edith H. Quimby and L. D. Marinelli, New York—p. 16  
Right Aortic Arch W. W. Tray Rochester N. Y.—p. 27  
Radium Treatment of Postoperative Parotitis H. H. Bowring and R. E. Fricke Rochester Minn.—p. 37  
Present Status of X-Ray as an Aid in Treatment of Gas Gangrene J. F. Kelly Omaha—p. 41  
Roentgen Therapy in Treatment of Nonspecific Respiratory Diseases A. J. Williams and L. Bryan San Francisco—p. 45  
\*Blood Picture in X-Ray and Radium Workers I. I. Kaplan and S. Rubenfeld New York—p. 47  
Influence of Roentgen Rays and Radium on Epiphyseal Growth of Long Bones J. D. Bisgard and H. B. Hunt Omaha—p. 56  
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Fifth Installment) I. S. Trostler Chicago—p. 69  
Study of Back Scattered Radiation and Depth Dosage Using a Transplantable Animal Tumor as an Indicator K. Sugiura New York—p. 76  
Radiation Therapy J. F. Elward Washington D. C.—p. 86

**Blood Picture in X-Ray and Radium Workers**—Kaplan and Rubenfeld observed a group of radium workers, both technicians and clinicians over a period of from one to four years. They have divided the series into group I, those doing roentgen diagnosis; group II, radium element technicians; group III, radium emanation technicians; group IV, radium and roentgen therapy technicians; and group V, radium pack nurses. Under satisfactory working conditions tolerable exposures of about 0.2 roentgen daily (as recommended by the International and British Committees) were found to be far below this tolerance dose in groups I, III and IV. Technicians working with the X-ray diagnostic machines manifested little or no reactions. One individual with a decrease in polymorphonuclears and an increase in lymphocytes, failed to rectify this alteration even after greater precautions, vacation or change of routine. The workers with radium element showed no deviation in the hemoglobin, red cell count or white cell count. Although the hospital radon technicians showed frequent white cell variations, the hemoglobin and red cell count were not reduced. This group stands as the one in which a low white count approaching a leukopenia with a relative lymphocytosis was fairly constant. Return to normal after a vacation was the rule. No hemoglobin or red cell diminution was observed in the technicians preparing commercial radon. Unlike the hospital group the total white cell level was maintained but a change in the white components was common. Of four technicians who manipulated both high voltage therapy machines and radium applicators two showed changes while two remained unaffected. The blood changes were demonstrated by a decrease in the polymorphonuclears and an increase in the lymphocytes, an occasional decrease in total leukocytes and a sporadic eosinophilia. An old malaria may well explain the latter in one individual. The one instance of a red cell anemia appeared in a nurse who manipulated the 5 Gm radium pack. She was the only one to show a complete inversion of the polymorphonuclear and lymphocyte ratio. The usual record in the other workers was a decrease in the polymorphonuclears and an increase in the lymphocytes, without any other changes. These changes appeared soon after commencing routine in the new field. None of the twenty-two individuals included in this survey showed any grave effects from their particular field of work. The most constant and evidently the most characteristic alteration that occurs in the peripheral blood after exposure to stray radiation from either radium or X-rays is a decrease in the polymorphonuclears and an increase in the lymphocytes. Since a definite reduction in the total white cells was recorded in but two individuals and an eosinophilia occurred in but two others the authors do not cite that as a definite blood change. This negation is further substantiated by the far greater percentage of white cell changes that appeared in twenty of the twenty-two persons studied. Whether one is justified in laying emphasis on the blood count reading as an index of reaction is a question. The symptom of undue tiredness which was dominant and often concomitant with alteration in the polymorphonuclear-lymphocyte ratio was persistently noticeable.



These workers took heed of this change, emphasized greater precautions in the course of their work, enjoyed more sunshine and fresh air, and were often rewarded by a dissipation of the fatigue and a more normal blood count level. Until some more sensitive index is made available, close scrutiny of the ratio between the polymorphonuclears and the lymphocytes should be made at regular intervals. When fatigue accompanies an altered ratio in these components, it will be well to emphasize precautionary and recovery measures.

### Rhode Island Medical Journal, Providence

19 17 30 (Feb.) 1936

Uremia (with Presentation of Specimens—Polycystic Kidneys) Case Kathleen M. Barr, Providence—p. 23  
Report of Milk Commission of Providence Medical Association R. C. Bates, Providence—p. 27

### South Carolina Medical Assn. Journal, Greenville

32 31 54 (Feb.) 1936

Three Ps of Phthisis J. M. Preston, Lancaster—p. 31  
Clinical Approach D. Riesman, Philadelphia—p. 34  
Blood Transfusion R. M. Dicus, Jr., Greenville—p. 40

### Surgery, Gynecology and Obstetrics, Chicago

62 257 524 (Feb. 15) 1936

- \*Treatment of Peptic Ulcer Based on Physiologic Principles A. Ochsner, M. Gage and K. Hosoi, New Orleans—p. 257
- Fundamentals versus Gadgets in Treatment of Fractures P. B. Magnuson, Chicago—p. 276
- Adrenal Cortical Tumors G. F. Cahill, R. F. Loeb, R. Kurziok, A. P. Stout and F. M. Smith, New York—p. 287
- \*Surgery in Its Relation to Hypertension A. W. Adson, W. M. Craig and G. E. Brown, Rochester, Minn.—p. 314
- The Medical Problem and Management in Essential Hypertension S. M. White, Minneapolis—p. 332
- \*Cerebral Injuries Due to External Trauma G. W. Swift, Seattle—p. 340
- Diagnosis and Treatment of Stones in Common Bile Duct A. W. Allen, Boston—p. 347
- Ischemic Contracture A. Steindler, Iowa City—p. 358
- Iodine Relationships of Thyroid Disease G. M. Curtis, Columbus, Ohio—p. 365
- Diagnosis of Endometrial Hyperplasia L. E. Burch, Nashville, Tenn.—p. 373
- Some Aspects of Maternal Nutrition L. C. Conn, J. R. Vant and Margaret M. Malone, Edmonton, Alta.—p. 377

**Treatment of Peptic Ulcer**—According to Ochsner and his collaborators the treatment of peptic ulceration has in too many instances been focused on the ulcer itself without realization that the ulcer is merely a symptom. The causes for peptic ulcer can be divided into two groups: one in which the factors are not amenable to therapy but are inherent and predisposing, and the other in which they are precipitating but can be corrected. The inherent or predisposing factors are tissue susceptibility and constitutional predisposition. The precipitating factors are hypersecretion, hyperacidity, focal infection and gastric trauma. Tissue susceptibility, which is an inherent quality present in all individuals, is the vulnerability of certain portions of the gastro-intestinal tract to peptic digestion, such as the lesser curvature, pylorus, duodenal cap, jejunum and other portions of the intestinal tract subjected to the acid gastric chyme as Meckel's diverticulum containing islands of gastric mucosa. Constitutional predisposition, although difficult to define, is unquestionably present in most if not all patients with chronic gastroduodenal ulceration. As the predisposing factors are not amenable to therapy, the treatment of peptic ulcer consists in the prevention and the correction of the precipitating factors. The peptic ulcer patient must abstain from activities that increase gastric secretion and acidity. In addition to this abstinence, neutralization of gastric acidity is favored by a diet consisting of frequent small feedings as food is an important neutralizing agent. Administration of mucin is of value in controlling hyperacidity in many cases. Restoration of the normal function of the pyloric sphincter is of importance in the therapy of peptic ulcer because it relieves gastric retention and also diminishes secretion which is stimulated by gastric retention. The relaxation of the pyloric sphincter permits free regurgitation of the alkaline duodenal secretion into the stomach and favors neutralization. All foci of infection must be removed because they can act either directly, by producing a specific

inflammation in the stomach or duodenum, or reflexly, when within the abdomen, by producing pylorospasm. To minimize gastric trauma, only bland foods containing no roughage should be allowed. Because of the constitutional predisposition to ulceration, it is imperative that the patient change his mode of living. The surgical treatment of peptic ulcer consists largely in the treatment of complications, such as mechanical obstruction, perforation, repeated hemorrhages and danger of malignant change. In a case of pyloric occlusion with prolonged gastric retention and hypoacidity, gastro-enterostomy is the procedure of choice. In cases with hyperacidity or normal acidity, because of the increased susceptibility of the jejunal mucosa to the acid gastric chyme, the resection of the pyloric sphincter or the performance of a gastroduodenostomy is to be preferred to gastrojejunostomy. The duodenal mucosa is more resistant to the acid gastric chyme than is the jejunal mucosa. The chronic calloused ulcer in the stomach, which does not respond readily to therapy, should be operated on and radical resection done, because of the danger of malignant change.

**Surgery as Related to Hypertension**—Adson and his associates submit the results of a number of surgical procedures carried out in cases of hypertension. The purpose of operation is to destroy the vasomotor innervation to a large vascular area in order to make those vessels which are deprived of their vasoconstrictor impulses unable to respond to the central mechanism and therefore unable to take part in the general phenomena of vasospasm. While the vessels that have not been denervated continue with spasm, the denervated vessels dilate instead and act as reservoirs. The musculature of the heart and blood vessels is capable of responding directly to the pressor and depressor substances circulating in the blood stream and there is a possibility that these substances increase or that the musculature becomes more active, as a compensatory factor following extensive forms of sympathectomy. It is therefore further possible that this is the explanation for the surgical failures. Operative procedures on the adrenal suggest that a diminution of the secretion of epinephrine is a beneficial factor in the treatment of the disease. The evidence to date, however, is not conclusive or indisputable. Analysis of the data following surgery indicates that certain definite results have been obtained by these extensive operative procedures. A limited number of patients fail to respond to the same procedure, while still others have obtained clinical improvement without a material drop in blood pressure, some of them having had a return of their old symptoms and of their high blood pressures. The interval following these surgical procedures is too short to prognosticate what the ultimate results will be. One of the authors' patients has now survived for approximately five years, but the remaining patients have survived twenty-five months or less. The immediate effects in many cases have justified the surgical treatment and they have encouraged the authors to continue with the operative measures in the hope that better selection of cases may be made and that subdiaphragmatic splanchnic resections with removal of the upper two lumbar ganglia and resection of the adrenal may be more effective in controlling or relieving symptoms of essential hypertension than the operation of bilateral ventral rhizotomy of the thoracic and lumbar roots extending from the sixth thoracic to the second lumbar, inclusive.

**Cerebral Injuries Due to Trauma**—Swift bases his treatment of cases of cerebral injury due to external trauma on the theory that: 1 The damage is largely done by direct hydraulic pressure and in direct proportion to the character of injury. 2 A disturbance to the normal cerebrohydrodynamics must be rectified at the earliest moment. 3 A maintained cerebrospinal fluid balance is essentially a determining factor as to both mortality and morbidity. 4 Cerebral hemorrhage when fatal, occurs within the first three hours and in less severe cases may be controlled by proper spinal drainage. 5 The presence of a hydrated brain previous to the injury necessitates the most careful and constant observation. 6 The controlling factors are blood pressure, pulse pressure and sustained nourishment of the patient during the hours of repair. 7 Spinal drainage, hypertonic solutions and whole blood transfusions are the most

valuable procedures. They must be ordered only after careful evaluation of the demand for each one and under the constant supervision of trained nurses, interns and surgeons.

### Texas State Journal of Medicine, Fort Worth

31 603 660 (Feb.) 1936

- Surgical Pathology of Thyroid Gland A C Broders Rochester Minn —p 608  
 Radiotherapy for Acute and Chronic Inflammatory Conditions A L Desjardins Rochester Minn —p 616  
 Suppurative Arthritis of Knee Joint G W \ Eggers Galveston —p 623  
 Multiple Myeloma G D Carlson Dallas —p 627  
 \*Occurrence of Combined Depression of Bone Marrow and Encephalitis Following Use of Neosarsphenamine Report of Two Cases One with Necropsy and Another with Recovery R B G Cowper Big Spring and J C Yaskin Philadelphia —p 633  
 Bright's Disease Pathology and Treatment J L Miller Chicago —p 638

**Encephalitis Following Neosarsphenamine**—Cowper and Yaskin cite two cases of combined occurrence of encephalitis and blood dyscrasias following the use of arsphenamine. In case 1 there was involvement of all the blood elements producing aplastic anemia of the severest kind which did not respond to any form of treatment. In case 2 there was transient and very mild involvement of most of the blood elements caused by a mild depression of the bone marrow. Both cases when first seen presented manifestations of grave brain disease of unknown etiology. The coexistence of evidences of blood dyscrasias in similar cases may make one suspicious of arsphenamine intoxication. Encephalitis and blood dyscrasias following the administration of arsphenamines vary considerably in their severity. The encephalitis is a result of the involvement of the reticulo-endothelial system; it may be severe with pericapsillary hemorrhages and be rapidly fatal or it may be mild with edema of the brain and may terminate in recovery. When only the blood platelets are affected (thrombocytopenia) purpura with hemorrhages follows and recovery is the rule. When the bone marrow is slightly depressed there may be only a reduction of the white cells with a fair chance for recovery. In severe bone marrow depressions when all cellular elements of the blood become affected (aplastic anemia) the outcome is unfavorable. Considering the great number of arsphenamine injections, these complications are relatively uncommon. While there is no way of predicting their occurrence in the majority of cases owing to their seriousness it is necessary to bear in mind certain precautions. The arsphenamines should be used only when there is a clear indication after taking all facts and factors into consideration. Subjective complaints on the part of the patient receiving the arsphenamines should call before any further treatment is given at least for a careful inspection of the skin and mucous membranes and a complete blood count. The treatment of the complication consists in the administration of sodium thiosulfate transfusions and supportive measures.

### Western J Surg, Obst & Gynecology, Portland, Ore

43 661 726 (Dec.) 1935

- Lingual Thyroid Comprehensive Review M L Montgomery San Francisco —p 661  
 Hypoplasia of the Endometrium with Especial Reference to Common Histologic Picture in Cases of Functional Uterine Bleeding W M Wilson Portland Ore —p 670  
 \*Estrogenic Substances in Treatment of Pelvic Inflammatory Disease C F Fluhmann and P E Hoffmann San Francisco —p 678  
 Pathogenesis of Orogenous Abscess of Temporal Lobe Preliminary Report C B Courville and J M Nielsen Los Angeles —p 681  
 Total Leukocyte and Filament Nonfilament Neutrophil Count Following Surgical Operations Without Complications Camille Mermod San Francisco —p 691

**Hypoplasia of the Endometrium**—Wilson observed the endometrium in 139 cases of functional bleeding. He states that in addition to substantiating his impression concerning the incidence of hyperplasia in uterine bleeding the study has elicited an endometrial picture which is probably common for the majority of cases of so called functional bleeding. There is, he believes, ample evidence in the medical literature to substantiate this premise. The etiologic factors involved in the development or underdevelopment of the endometrium as well as the causes of bleeding in these cases are obviously difficult to determine. Although historical data that he records are probably inadequate for confirmatory evidence pointing to

definite gonadal dysfunctions, he is convinced that further studies will show that the endometrial picture described is the result of an ovarian dysfunction associated with a diminution in the production of the follicular hormone. The histories and pelvic examinations in a number of cases point in this direction. Likewise the endometrial picture in a majority of cases lacks all signs of proliferation, development appearing to have ceased in the interval phase of the cycle, well before ovulation. This suggests an inadequate supply of estrogenic substance for the normal cyclic proliferation of the endometrium. Quantitative determinations for estrogenic substance in the blood urine and menstrual discharges of these women would probably furnish further enlightenment. The actual bleeding might be explained on the basis of a diminution in estrogenic substance. It is now generally believed that menstruation in the human being is due to a drop in the estrogenic substance blood level and the author suggests that the same factor is responsible for many cases of premature and otherwise abnormal bleeding. The fact that estrogenic and anterior pituitary-like substances effect a reduction or a cessation of bleeding in some cases of this type is additional evidence in favor of hypo ovarianism.

### Estrogenic Substances in Treatment of Pelvic Disease

—On the presumption that estrogenic substances stimulate the defensive mechanism of the pelvic organs Fluhmann and Hoffmann undertook to study the use of estrogenic substance in twenty-nine adults with acute and chronic pelvic inflammatory disease. The substance employed was a preparation of amniotin (Squibb) dissolved in oil and containing 500 or 1000 rat units per cubic centimeter. It was administered intramuscularly in 0.5 or 1 cc doses daily until the patient had had from five to sixteen injections and a total dosage varying from 3,750 to 16,000 rat units. Twenty-four patients were ambulatory with chronic or subacute salpingitis, while five were hospitalized and represent a group of acute febrile cases. In twenty-three instances there were definite palpable adnexal masses at the time the injections were begun. On reexamination in from two to six weeks after the course of treatment, complete healing with a disappearance of the masses resulted in seven cases, while nine showed definite improvement but with palpable pathologic changes of the pelvis. On the other hand, no improvement was noted in seven cases, in five of which operation was eventually performed. Of six women in whom no palpable masses were demonstrable but definite tenderness and induration were elicited in the region of the adnexa on pelvic examination only three showed any degree of improvement within from two to six weeks after treatment. Of twenty-seven women nine stated that they had obtained complete relief from pelvic pain within from two to six weeks. In three instances this appeared after the third or fourth injection and it was observed even with persistent pelvic masses. Twelve patients obtained partial relief from pain while complete failure was noted in only six instances. Of nineteen cases of profuse vaginal discharge definite improvement within from two to six weeks was noted in seven instances whereas the amount of discharge was unaffected in twelve cases. A positive smear for gonococci was obtained before treatment in thirteen cases and six became negative from two to six weeks after treatment. No evidence was obtained that the administration of as much as 9,500 rat units of the preparation during the course of a cycle produces any disturbance in that cycle or in the succeeding menstrual period.

### Yale Journal of Biology and Medicine, New Haven

S 223 336 (Jan.) 1936

- Peter Parker Initiator of Modern Medicine in China S C Harvey New Haven Conn —p 225  
 Id Missionary and Diplomat K S Latourette New Haven Conn —p 243  
 Id Minister of Good Will T C Yu New York —p 249  
 Dangers Inherent in Clinical Diagnosis of Cancer D Merrill Lo ton —p 253  
 Effect of Cyteine on Tetanus Toxin P B Cowles New Haven, Conn —p 262  
 Carcinoma of Breast Results of Radical Surgery Alone Over Ten Year Period L N Claiborn and L C Foster New Haven Conn —p 269  
 Mortality and Natality Rates in New Haven Metropolitan Area J H Watkins New Haven Conn —p 279  
 Fat Embolism H H Groszlos Philadelphia —p 297

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

**British Journal of Dermatology and Syphilis, London**  
48 152 (Jan.) 1936

- \*Importance of Overlapping in Irradiation of the Scalp. Comments on Tolerance of Skin for Soft Rays. S. Epstein—p. 1  
Methods to Be Employed in the Investigation of New Substances Designed for Treatment of Syphilis. W. R. Snodgrass—p. 11  
Biologic Therapy in Virus Diseases. R. T. Brain—p. 21

**Overlapping in Irradiation of the Scalp**—Epstein points out that in epilation irradiations of the head with longer focus skin distances so much overlapping occurs that some areas under certain circumstances of irradiation receive up to 180 per cent of the dose applied to the different centers and thus receive up to nearly 500 roentgens (incidence dose). In spite of these overdoses there are no bad consequences to be feared for normal cases, as experience shows. This is intelligible as a result of observing a child, aged 4 years, who received on one field of radiation 540 roentgens (incidence dose). Even with this dose there was only a temporary epilation, without any reaction and with subsequent full regrowth of the hair. These observations tend to bear out from the clinical point of view the statement, demonstrated by experiments of various authors, that the sensitivity of the skin is the same for the rays applied for dermatologic therapeutics (of about 100 kilovolts) as well as for harder rays.

**British Journal of Radiology, London**

9 170 (Jan.) 1936

- Looking Backward and Looking Forward. L. A. Rowden—p. 3  
Whither Radiology? C. G. Teall—p. 9  
Radiology as a Specialty. J. F. Brailsford—p. 17  
The X-Ray Microscope. G. Shearer—p. 30  
\*The Depth Dose in Radium Teletherapy. C. W. Wilson—p. 38  
Field Distortion in Standard Ionization Chamber. W. H. Love and W. B. Smith White—p. 51  
Ureterocele. E. R. Williams—p. 59

**Depth Dose in Radium Teletherapy**—By measurements with various wax phantoms of the radiation intensities due to the 2 Gm. bomb at Westminster Hospital Annex, Wilson studied the relative magnitudes of the primary and secondary radiations comprising the total depth dose. It is shown that the intensity measured at a depth in wax is nearly always less than that measured at a corresponding position in air, therefore scatter does not compensate for absorption in this case. Even at depths as great as 10 cm., more than 80 per cent of the total dose consists of forward directed radiation of a quality that appears to differ but little from that of the primary radiation received by the skin. A small part of entry may be of value in the construction of a radium bomb if it is most desirable to use only the hardest radiations at a depth since such an arrangement helps to reduce the amount of softer scattered radiation to a minimum.

**British Journal of Tuberculosis, London**

30 152 (Jan.) 1936

- Problems in Applied Medicine. Why Can Some Individuals Develop Extensive Tuberculous Lesions Without Serious Impairment of Health? M. Davidson—p. 3  
Treatment of Pulmonary Tuberculosis by Phrenic Evulsion. G. R. B. Purce and D. R. Clarke—p. 9  
Some Observations on Plomhage Operation in Pulmonary Tuberculosis. W. Behrens—p. 17  
\*Perifocal and Traumatic Hemorrhages in Pulmonary Tuberculosis. W. Pagel and D. MacCallum—p. 25  
Sub Jove Frigido. R. C. Wingfield—p. 32  
Blood Sedimentation Test. A. K. Miller—p. 39

**Perifocal and Traumatic Hemorrhages in Pulmonary Tuberculosis**—Pagel and MacCallum state that the varying and complicated mechanism of pulmonary hemorrhages in tuberculosis has heretofore received inadequate attention. It seems desirable to collect cases providing anatomic proof of hemorrhages, in which there is no evidence of the simple rupture of a cavity aneurysm or of a vessel with tuberculous involvement of the wall. They report two cases. 1. A case of fatal hemoptysis in pulmonary tuberculosis did not show the simple condition of the rupture of a cavity aneurysm but disseminated perifocal and intrafocal hemorrhages which must be referred

to allergic hypersensitiveness associated with the process of recent liquefaction. A small aneurysm only microscopically visible in an early cavity, like the capillary alterations in the other foci, appeared to have developed rapidly during recent processes of liquefaction and therefore was not to be regarded as accidental. 2. This case permitted an examination of the influence of a trauma on old tuberculous foci, demonstrating the hemorrhagic destruction of the latter. The tissue of the foci appeared to be more fragile than the normal pulmonary tissue, the latter showing the most marked destruction in the neighborhood of the foci (perifocal hemorrhage).

**British Medical Journal, London**

1 144 (Jan. 4) 1936

- Fractures of Spine. S. T. Irwin—p. 1  
Harelip. H. D. Stephens—p. 5  
Treatment of Asthma by Ultraviolet Light. G. H. Day—p. 8  
Spinal Anesthesia. L. Doyle—p. 11  
Spontaneous Rupture of Urinary Bladder. Report of Case. W. Morton—p. 14

**Glasgow Medical Journal**

7 148 (Jan.) 1936

- Therapeutic Outlook in Organic Nervous Diseases. D. K. Adams—p. 1

**Journal of Pathology and Bacteriology, Edinburgh**

42 1328 (Jan.) 1936

- \*Carbon Tetrachloride Cirrhosis in Relation to Liver Regeneration. G. R. Cameron and W. A. E. Karunaratne—p. 1  
Pathology of Tropical Typhus (Rural Type) of the Federated Malay States. R. Lenthwaite—p. 23  
\*Cultivation of Streptococci from Pasteurized Milk. H. D. Wright—p. 31  
Further Investigations on Causal Agent of Bovine Pleuropneumonia. F. F. Tang, H. Wei, and J. Edgar—p. 45  
Studies on Bacillus Typhosus in Shanghai. R. C. Robertson and H. Yu—p. 53  
Australian Epidemic of Encephalomyelitis (N. Disease). J. R. Perdrau—p. 59  
Hematologic Variations in Fifty Normal Adult Males. M. McGeorge—p. 67  
Occurrence of Typhoid Bacilluria in a Horse. G. I. Petrie—p. 75  
Relation Between Growth Rate of Tar Warts in Mice and Their Corresponding Autografts. J. C. Mottram—p. 79  
Histology of Sex Organs of Ovariectomized Rats Treated with Male or Female Sex Hormone Alone or with Both Simultaneously. V. Korenechovsky and M. Dennison—p. 91  
Bone Marrow in Brown Pearce Carcinomatosis of Rabbit. J. W. Orr—p. 105  
Pathology of Synovial Effusions. D. H. Collins—p. 113  
Effect of Renal Denervation on Blood Pressure in Experimental Renal Hypertension. W. M. Arnott and R. J. Kellar—p. 141  
Sarcoma Production in Mice by Single Subcutaneous Injection of a Benzoylamino Quinoline Styryl Compound. C. H. Browning, R. Gulbransen, and J. S. F. Niven—p. 155  
Comparison of Changes Induced by Some Pure Estrogenic Compounds in Mammary and Testes of Mice. H. Burrows—p. 161  
Effect of Estrone Administration on Mammary Glands of Male Mice of Two Strains Differing Greatly in Their Susceptibility to Spontaneous Mammary Carcinoma. Georgiana M. Bonser—p. 169  
Systematic Position of Morgan's Bacillus. K. F. Rauss—p. 183  
\*Pathology of Rhinosporidiosis. W. A. E. Karunaratne—p. 193  
Rare Type of Diffuse Carcinoma of Pancreas with Unusual Metastases. R. A. Willis—p. 203  
Epidemic of Pasteurella Infection in a Guinea Pig Stock. Joyce Wright—p. 209  
Inapparent (Subclinical) Infection of Rat with Louping Ill Virus. F. M. Burnet—p. 213  
Assay of Antigens with Especial Reference to Staphylococcus Toxoid. Margaret Llewellyn Smith—p. 227  
Staphylococci from Animals with Particular Reference to Toxin Production. F. C. Minett—p. 247  
\*Effect of Temporary Stoppage of Blood Supply of Rat Tumors. H. Chambers and G. M. Scott—p. 265  
Infection of Rhesus Monkey (Macaca Mulatta) and Guinea Pig with Virus of Equine Encephalomyelitis. E. W. Hurst—p. 271  
Variable Sensitivity of Different Sites of Skin of Mice to Carcinogenic Agents. J. M. Tnort and C. C. Tnort—p. 303

**Carbon Tetrachloride Cirrhosis in Relation to Liver Regeneration**—Experiments by Cameron and Karunaratne show that carbon tetrachloride in small amounts produces marked lobular degeneration and necrosis of the liver, followed at once by proliferation of the unaffected liver cells and complete repair, in the case of the rat in from one to two weeks. The smallest amount necessary to produce histologic evidence of damage to the rat's liver is about 0.025 cc. per kilogram of body weight, a dose within the limits of the therapeutic dose for man. Multiple exposures call forth in the rat's liver

changes the nature of which is determined by the size of the dose and the interval between successive doses. A certain minimal amount, greater than the minimal toxic dose for the liver, must be given at short intervals to induce permanent effects. When there is time for recovery after each dose, carbon tetrachloride can be administered indefinitely without producing any permanent alteration. If, on the other hand, time spacing does not allow of complete recovery after each dose cirrhosis of the liver results. There are two stages in the development of carbon tetrachloride cirrhosis: (1) a precirrhotic reversible stage, with histologic features indistinguishable from actual cirrhosis and (2) a cirrhotic stage, with a finely or coarsely granular liver. In the former, the liver reverts to normal on discontinuance of the drug. Restoration is due mainly to proliferation of liver cells, although it seems that fibrous tissue bands may actively disappear. The cirrhotic stage is characterized by the permanent nature of the peribulbar fibrosis which persists for months after the carbon tetrachloride has been discontinued. There is also diminished or absent growth capacity of the liver cells in autoplasmic liver grafts and impairment of restoration in the liver as a whole after partial hepatectomy. There is evidence that in at least two other types of experimental cirrhosis (tar and sudan III) similar stages in the progress of the condition may be recognized.

**Streptococci from Pasteurized Milk**—Wright declares that the presence of organisms of the *Streptococcus thermophilus* group is an important cause of the difficulties in the bacteriologic examination of pasteurized milk. The standard mediums are unsuitable for the cultivation of the majority of these organisms. The growth requirements of different strains show considerable variation, some growing well on infusion mediums while others need the addition of milk lactose or sucrose. Fermentable disaccharides (lactose and sucrose) facilitate the growth of the more fastidious strains but the slowly fermented disaccharide maltose and the fermentable monosaccharides (dextrose, fructose and galactose) do not. Infusion agar is a better basis for the preparation of mediums for the cultivation of these organisms than either standard or yeast agar as the colonies are considerably larger. The occurrence of minute colonies in routine milk counts may also be dependent on the presence of other organisms with special requirements in regard to temperature and aeration during incubation.

**Pathology of Rhinosporidiosis**—Karunaratne points out that rhinosporidiosis is a disease almost invariably in men occurring in India, Ceylon and North and South America. It usually affects the nasal cavity, less frequently the conjunctiva and rarely other sites. It produces a friable polypoid mass that bleeds easily. Only fifty-three cases have been reported in the literature, although the author has seen thirty-four instances during the last thirteen years. He discusses the structure and life history of *Rhinosporidium* and the morbid anatomy and the histology of the lesion. In the nose the polyp tends to become obstructive. Often a well marked coryza precedes and accompanies the obstruction. The discharge which is thin and mucoid and sometimes blood stained usually contains both spores and sporangia. Epistaxis is seen in only a few cases and a definitely purulent discharge is rare. When the growth occurs in the nasopharynx it may hang downward and cause difficulty in swallowing. In the conjunctiva the tumor readily attracts attention and in the few cases in which infection of the lacrimal sac had occurred obstruction resulted from blocking of the sac by growth and was accompanied by suppurative dacryocystitis. A tendency to recurrence is a characteristic feature. The tendency to recurrence would suggest that the parasite undergoes its complete cycle of development in the human body without the intervention of an intermediary host. Another important characteristic is the long history. Trumurti mentions an instance in which the patient had the infection for twenty years and in Knowles' case the infection had lasted sixteen years. The infection remains localized to the original site though nearby sites may become infected but there is no evidence of generalized hematogenic dissemination. Nothing definite is known about the modes of infection and transmission. As the nose and eye are the commonest sites it is possible that the organism is transmitted in dust or water. The presence of infection in nearby sites would point to the possibility of auto-

inoculation. It has not been possible to grow the organism in artificial mediums, with the doubtful exception reported by Ashworth, nor has it been possible to transmit the infection to the lower animals. Infection in farm animals has been observed and it is possible that there is some definite etiologic relationship between the disease as it occurs in man and in the lower animals.

**Effect of Stopping of Blood Supply of Rat Tumors**—A strain of Jensen's rat sarcoma, which normally progresses and causes death in more than 90 per cent of the animals was used by Chambers and Scott in temporarily stopping the blood supply to the tumor (for from two to four hours) with as little local damage as possible. An ordinary large screw clip was used, the metal bars of which were covered with thick rubber tubing holding a water jacket. Only one water jacket was used, the other side of the clip was left empty. The temporary stopping of the circulation of actively growing Jensen's rat sarcoma when effectively carried out, often caused the disappearance of the tumor. This appeared to be mainly dependent on the complete block of the vascular supply, but also to some extent on the amount of surrounding tissue included in the clip and on the size and rate of growth of the tumor at the time of treatment. After the disappearance of the tumor the rats are invariably immune to inoculations of Jensen's rat sarcoma. The total number of tumors treated was 251, of which seventy-three disappeared. A 30 per cent spontaneous disappearance is out of the question, as records show that spontaneous regression of this tumor is rare.

## Journal of State Medicine, London

44 63 124 (Feb.) 1936

Undulant Fever. A Retrospect. J. Eyre—p. 64

The Medical Profession of the Future. C. S. Thomson—p. 89

## Lancet, London

1 67 126 (Jan. 11) 1936

Carcinoma of Esophagus. Question of Its Treatment by Surgery. G. C. Turrer—p. 67

Intermittent Claudication and Its Quantitative Measurement. H. T. Simmons—p. 73

Umbilical Strain. G. A. G. Mitchell—p. 75

Treatment of Dysmenorrhea by Alcohol Injection. A. A. Davis—p. 80

Whooping Cough. Value of Specific Vaccine in Treatment. A. D. Begg and Margaret F. Coveney—p. 82

**Treatment of Dysmenorrhea by Alcohol Injection**—Davis states that the object of injecting alcohol for the relief of dysmenorrhea is to block the nerve pathway to the uterus at its nearest accessible point. The portion of this pathway which most conveniently lends itself to external intervention is the pelvic plexus of Lee Frankenhauser, which concentrates most of the uterine nerve supply in a comparatively small area. With the patient in the lithotomy position and anesthetized by the sodium salt of a barbituric acid derivative, the cervix is seized with volsella and retracted toward the left. The right fornix is further exposed with the aid of a flat lateral retractor. A long graduated gasserian needle is then passed horizontally through the vaginal mucosa at the side of the cervix for a distance of 0.5 cm and the retractor is removed. The needle is now passed backward and outward for approximately 1.5 cm at an angle of 45 degrees to both the sagittal and coronal planes and guided by a finger in the rectum to a point 0.5 cm from the side of the rectal ampulla. The needle is then withdrawn for 0.5 cm and 1 cc of an 85 per cent solution of alcohol is injected the needle point being kept slightly but continually moving. The same procedure is repeated on the other side. Perforation of the rectum with consequent cellular infection is avoided by making the injection 1 cm away from that organ, as calculated from the internal finger. Injury to the ureter is prevented by keeping the needle point lateral to it. The uterine artery if touched usually slips away from the needle but constant movement of the latter is a further safeguard. Only six cases have been treated over a sufficiently long period of time to allow conclusions to be drawn. The ultimate result was complete and apparently permanent relief, an effect which appears to indicate the superiority of this operation over ordinary dilation. The relief of dysmenorrhea which follows the

operation may be explained by interruption of sensory pathways, interruption of motor pathways and interruption of irregular ovarian influence. It is difficult to assess the relative importance of these factors, but it is probable that destruction of the sensory nerves is the predominant one. The reason for this assumption is that unilateral alcoholization of the parametrium relieves pain on that side only (Blos).

### South African Medical Journal, Cape Town

D 857 894 (Dec 28) 1935

- Some Shanghai Medical Activities H S Gear —p 859  
The Year's Work F P Bester —p 861  
Some Clinical Methods P W J Keet —p 863  
Reminiscences J M Fehrman —p 865  
Radium Treatment of Superficial Lesions R J W Charlton —p 869  
Jobannesburg Hospital in Pioneer Days (1887-1890) G J M Melle —p 872

### Japanese Journal of Gastroenterology, Kyoto

7 179 212 (Dec) 1935

- Studies on Metabolism of Levoglucosin T Kimura —p 179  
Golgi's Apparatus of Liver in Hepatic and Renal Disturbances Y Imai —p 202

### Journal of Oriental Medicine, Dairen, South Manchuria

23 61 84 (Nov) 1935

- Innominate and Common Carotid Arteries in Chinese K Miyashita —p 61  
Subclavian Artery in Chinese K Miyashita —p 63  
Visceral Branches of Abdominal Aorta in Chinese K Miyashita —p 65  
Sarcoma of Bladder K Kitagawa —p 67  
Anthropologic Studies on Chinese S Takeya —p 69  
Lateral Nasal Wall in Chinese N Toida —p 71  
Anthropologic Studies on Lips of Chinese H Hada —p 73  
Lower Jaw of Chinese Children I Mental Foramen H Sakai —p 75  
X-Ray Diagnosis for Sterility M Sasaki —p 76  
Vital Staining of Trypanosoma Lewisii III Relation Between Vital Staining and Chemical Constitution or Physical Property of Dyestuff (Continued) S Hatano and H Takamatsu —p 78  
Reducing Faculty of Reductone Formed by Saccaroid M Sugiura —p 79  
Cow's Milk in Manchuria and Mongolia V Vitamin C M Sugiura —p 80  
Biochemical Study of Hydrocyanic Acid II Fluctuation of Fibrinogen Content in Blood During Hydrocyanic Acid Intoxication (Supplement) Influence of Leukocytes During Intoxication Period M Fukushima —p 81  
Biochemical Study of Nitril Compound VII Fluctuation of Fibrinogen Content in Blood in Aromatic Nitril Toxication (Supplement) Influence on Coagulation Time of Blood During Period M Fukushima —p 82  
Atmospheric Pollution in City of Dairen Manchuria I Deposited Impurities in Winter B Tanaka and M Takeda —p 83

**Röntgen Diagnosis for Sterility**—Sasaki claims that hysterosalpingography is superior to internal gynecologic examination in its exactness and certainty in the diagnosis of sterility. Results of the hysterosalpingographic diagnosis on the uterus and salpinx in his sixty-six cases of sterility were as follows: 1 Uterine hypoplasia was found in 36.4 per cent, which accounts for its importance as one of the causes of sterility. 2 Adhesion of the uterus with neighboring organs was observed in 46.9 per cent. It is inconceivable that such an adhesion is a direct cause of sterility. Its significance lies in the fact that it is one of the complications of salpinx inflammation. 3 Retroflexions and versions of the uterus were detected in 48.5 per cent. Pregnancy, however, frequently does take place in cases of flexions or versions, which fails to prove that these lesions are the cause of sterility in such a high proportion of cases. But it is still undeniable that there is some close relation between them and sterility. 4 Closure of both sides of the salpinx in 42.4 per cent and of one side in 15.8 per cent and only 31.8 per cent of thorough penetrability of both sides of the salpinx were noted. These results explain the paramount significance of salpinx closure as a cause of sterility. 5 Adhesions of the salpinx occurred on both sides in 50 per cent, on one side in 12.1 per cent and not at all in 37.9 per cent. Further, these adhesions have a significant correlation with salpinx closure. In sterility arising from the female internal organs of generation, salpinx closure plays the most important part followed by uterine hypoplasia. Retroflexions and versions of the uterus should elicit considerable attention.

### Presse Médicale, Paris

44 65 88 (Jan 11) 1936

- Technic of Interilio Abdominal Disarticulation R Leriche and E Stulz —p 65  
Transfusion of Blood from Cadaver to Human Beings S S Judice —p 68  
Study of Erythrocyte Sedimentation in Syphilis J Gate and H Chevat —p 71  
\*Nervous Complications from Freeing Pleural Adhesions O M Mistal —p 73

**Complications in Freeing Pleural Adhesions**—Mistal discusses the anatomic relations of the nerves and their points of contact in operations designed to free pleural adhesions. The phrenic and recurrent nerves are so placed anatomically as to be especially liable to injury. Lesions of the phrenic nerve usually remain obscure. Complete paralysis of the left vocal cord is the most striking effect of injury to the recurrent nerve. The brachial plexus may be injured by some routes of approach. The pains and tingling of the arms and hands that may result from such injury are temporary or permanent. The intercostal nerves may also be affected. Lesions of the sympathetic are exceptional but may occur. The usual result is Horner's syndrome. The possibility of injuring all these nerves demonstrates the dangers to which the operator is exposed and indicates the wisdom of leaving pleurolysis in the hands of the specialist.

44 105 128 (Jan 18) 1936

- Exophthalmic Goiter L Justin Besançon —p 105  
\*Experimental Verification of Tuberculous Etiology of Erythema Nodosum R C Aguirre and P R Cervini —p 110

**Tuberculous Etiology of Erythema Nodosum**—Aguirre and Cervini state that in a previous communication considerable evidence of the tuberculous nature of erythema nodosum was reported in five cases. They describe another case in which the histology and bacteriology were carefully studied. Microscopic examination of the patient's nodule showed exudative pericapillary inflammation of the skin. The fatty subcutaneous tissue and deep skin showed inflammatory nodules with polymorphonuclear leukocyte predominance and panarthritis. Direct cultures from the nodules on a semisolid medium grew slowly and the surface pellicle showed acid alcohol resistant bacteria that caused tuberculosis and death when inoculated intraperitoneally in guinea-pigs. The culture thus obtained was reinjected subcutaneously into a tuberculin negative five months old calf which developed tuberculosis and local lesions not unlike those of erythema nodosum. The authors feel, therefore, that Koch's postulates have been completely satisfied and that the tuberculous nature of erythema nodosum is entirely proved.

### Schweizerische medizinische Wochenschrift, Basel

66 193 216 (Feb 22) 1936 Partial Index

- Flatfoot and Arch Supports A Sidler —p 193  
High Altitude Climate D Michetti —p 196  
Efficacy of Colposcopic Diagnosis of Carcinoma H Hinselmann —p 200  
\*Connections Between Certain Retinal and Spontaneous Leptomeningeal Hemorrhages P Karbacher —p 201

**Retinal and Spontaneous Leptomeningeal Hemorrhages**—Karbacher points out that retinal hemorrhages develop in many different disturbances and that their explanation is often difficult. In recent years attention has been called repeatedly to the retinal hemorrhages that occur in the course of so called spontaneous, leptomeningeal hemorrhages. The term spontaneous in connection with leptomeningeal hemorrhages excludes the traumatic as well as the inflammatory (in infectious diseases) forms. The author describes the histologic aspects of the eyeballs and optical nerves of a patient with spontaneous leptomeningeal and retinal hemorrhages. The case belongs to the group of spontaneous leptomeningeal hemorrhages because all other etiologic factors particularly cardiovascular or renal ones can be excluded. At the entrance of the optic nerves into the eyeballs there was not a trace of penetration of blood from the sheath of the optic nerve into the nerve or from the lamina cribrosa into the retina. Thus the histologic examination proves that it is unlikely that blood passed from the sub-arachnoidal space of the brain into the sheath of the optic nerve and from there by way of the lamina cribrosa into the eye. The case proves the simultaneous occurrence of venous stasis



in the eye in retinal and leptomeningeal hemorrhages. Nevertheless, extensive retinal hemorrhages, particularly those that penetrate into the vitreous body, are extremely rare in case of choked disk. However, since in cases of spontaneous, leptomeningeal hemorrhages bleeding into the vitreous body is rather frequent, it is difficult to connect these bleedings with choked disk. This contradiction fails to be explained and makes it appear possible that similar impairments of the vascular wall as have been assumed for the spontaneous leptomeningeal hemorrhages, are also responsible for the retinal hemorrhages.

### Polclinico, Rome

43 183 226 (Feb. 3) 1936 Practical Section

\*Parenteral Oxygen Treatment in Pulmonary Tuberculosis E. Frola—p. 185

Infiltrating Stenosing Rectitis Cases G. Bendandi—p. 193

**Parenteral Oxygen Treatment in Pulmonary Tuberculosis**—Frola resorted to hypodermic injections of oxygen in the treatment of pulmonary tuberculosis. The injections, at a dosage of 200 cc per injection, are given in the subcutaneous tissues of the anterolateral region of the thigh with an apparatus such as is commonly used for the performance of pneumothorax, provided it is small, is deprived of its manometer and is connected with a supply of oxygen. The injections should be given slowly, to avoid sudden distention of the tissues or injury to the vessels, which may result in the formation of embolism, and should be repeated every other day for about a month. The author concludes that the treatment has an antitoxic as well as a favorable action on the cardiovascular and hematopoietic systems and on the general trophism of the patient. It results in disappearance of fever, increase of the blood pressure, improvement of the blood picture, formation of a greater number of erythrocytes and amelioration of the disease, which is proved by the results of the tests of allergy to tuberculosis and of the sedimentation speed of the erythrocytes as well as by the feeling of well being of the patient and by his gaining in weight. Hypodermic injections of oxygen also control tuberculous hemoptysis and prevent its recurrence.

### Prensa Medica Argentina, Buenos Aires

23 355 418 (Feb. 5) 1936

Closing of Tuberculous Cavity by Bronchial Obstruction in Course of Artificial Hypotensive Pneumothorax Cases A. A. Ramondi and R. Scartascini—p. 355

Dynamic Significance of Bradycardia D. Gross—p. 363

\*Animal Charcoal in Treatment of Erysipelas H. D. Gonzalez and M. Shteingart—p. 371

Concentration of Diphtheria Toxins and Toxoids by Freezing of Blood Serum G. Elkeles—p. 373

Babeurre in Feeding Nurslings J. R. Abdala and J. C. Pellegrino—p. 383

Chylous Ascites Case G. A. Mortola and J. M. Mesa—p. 386

Indications of Incision in Neck of Uterus in Labor O. Arcioni—p. 389

**Animal Charcoal in Treatment of Erysipelas**—The intravenous injections of animal charcoal have been advised by St. Jacques in the treatment of various infections (*Canad. M. A. J.* 31 168 [Aug.] 1934 abstr. *THE JOURNAL*, Sept. 22, 1924 p. 948). Gonzalez and Shteingart used the injections in the treatment of erysipelas and state that the entire process follows a rapid evolution to recovery: pain and the sensation of tension of the erysipelas tissues stop, the fever abates and soon after disappears, the erysipelatous patches lose their luster and regress, the general symptoms improve and desquamation soon and rapidly takes place. The authors inject intravenously an amount that varies between 3 and 5 cc of a 2 per cent suspension of animal charcoal in a 10 per cent hypertonic dextrose solution. The solution of dextrose used instead of distilled water, which was the vehicle originally used by St. Jacques, makes unnecessary the refinement in the technic used by St. Jacques, namely, that the piston, syringe barrel and needle must be paraffined beforehand to prevent clogging by the particles of carbon. Dextrose solution prevents the precipitation of the particles of carbon in the suspension and does not modify the therapeutic properties of the drug on erysipelas. The injections prepared with dextrose solution as a vehicle are easily sterilized in the autoclave and can be preserved for a long time without alteration.

### Archiv fur Kinderheilkunde, Stuttgart

107 129 192 (Feb. 18) 1936

Air Filling of Cystic Cerebral Tumors in Children P. von Küss and I. Fenyes—p. 129

\*Chronic Constipation as Cause of Incontinentia Alvi R. Priesel and J. Siegl—p. 133

Dependence of Cutaneous Tuberculin Sensitivity and of Course of Tuberculosis on Thyroid A. Viethen—p. 136

\*Experimental Investigations on Toxic Action of Corn Smut (*Ustilago Maydis*) B. Dragisic and B. Varicak—p. 140

\*Gangrene in Scarlet Fever and Diphtheria K. Blumberger—p. 154

**Chronic Constipation as Cause of Incontinentia Alvi**—Priesel and Siegl report the histories of several children in whom incontinence of the feces was brought on by severe constipation. The development of this form of incontinence is about as follows: For some reason a constipation develops which constantly increases in severity, so that a thorough evacuation of the bowel becomes impossible without artificial aid in the form of purgatives or enemas. In the presence of a continuous urge to defecation, small quantities of feces are constantly given off by the overfilled ampulla of the rectum. In some cases, small amounts of feces with an admixture of mucus are found around the anus. The mucus is probably secreted by the rectum in response to the irritation of the coprostatitis. The treatment should consist in the evacuation of the bowel by means of an enema, and after that the medicinal regulation of bowel movements is indicated until they have become normal again.

**Toxic Action of Corn Smut**—Dragisic and Varicak point out that corn smut (*Ustilago maydis*) has an action similar to that of ergot and that it is used as an abortifacient in the popular medicine of some regions. They report their experimental studies on the toxic effects of corn smut. They poisoned mice by means of the oral as well as the subcutaneous administration of the substance and found that it exerts a severe toxic action. They were also able to corroborate the clinical aspects of ustilaginism. The administration of corn smut resulted in manifestations similar to those produced in experimental ergot poisoning, except that the former also produced chronic and tonic convulsions, that is, symptoms which had never been observed in ergot poisoning. The similarity between the toxic action of the two substances indicates the presence of ergotamine-like substances in corn smut.

**Gangrene in Scarlet Fever and Diphtheria**—According to Blumberger, gangrene of an extremity or of another part of the body is comparatively rare after scarlet fever and diphtheria. However, there is a milder form of gangrene which involves only the skin and produces necrosis but finally ends in cure. After discussing the possible pathologic anatomic foundations of these forms of gangrene, namely, embolism, thrombosis, toxic impairment of the capillaries, endothelial proliferations or direct impairment of the skin, the author shows that on the basis of former reports it may be said that in case of scarlet fever gangrene develops most often during the third or fourth week after the onset. In diphtheria likewise the embolic form of gangrene has been known to develop during the third week. However, although there is a certain uniformity in the time of appearance of the gangrene, the localization shows considerable variety, but there are also sites of predilection, namely, the lower extremities. The author describes two cases of gangrene that he observed. The first one concerned a boy with scarlet fever who rapidly developed gangrene of the left leg and also gangrenous areas on the right thigh and foot. This case had a fatal outcome, but consent for a necropsy was withheld. It is assumed that on the left side an embolic closure must have developed above the branching of the popliteal artery. The gangrenous areas on the right extremity must have been caused by embolisms of smaller cutaneous vessels. The second case concerned a child aged 3 years, who had diphtheria and who developed gangrenous areas on both lower extremities. This case also had a fatal outcome. The bacteriologic and histologic examination of tissues from the gangrenous areas indicated that the gangrene developed in the presence of a streptococcal infection with diphtheria and as the result of hemorrhages which in turn were caused by toxic impairment of the vessels.



**Deutsche medizinische Wochenschrift, Leipzig**

62 289 328 (Feb 21) 1936 Partial Index

- Therapy with Hormones and Vitamins G von Bergmann—p 289  
Causal Therapy of Asthma I Mattausch—p 293  
Therapy of Cirrhosis of Liver F Oefelein—p 298  
\*Treatment of Scurvy H Conrad—p 306

**Treatment of Scurvy**—Conrad reports the case of a man, aged 70, whose diet had consisted almost exclusively of white bread, canned vegetables and coffee. The patient appeared undernourished, had a subicteric color and had blood effusions on both lower extremities, on the left hand and on the right side of the chest. There also were hemorrhages from the oral mucous membrane and from the gums, and the teeth were loose and carious. Since the symptomatology together with the anamnesis indicated scurvy, the patient was given intravenously 350 mg of cevitamic acid and on the following five days 150 mg twice daily. Considerable improvement was noticeable on the fourth day. During these first days of the treatment the food was not especially rich in vitamin C. However when the intravenous injection of the cevitamic acid was replaced by the oral administration in tablet form the patient was given lemon juice and fresh vegetables. After two weeks the cevitamic acid medication was discontinued. After another three weeks the patient was discharged as cured. The author stresses that in severe cases of scurvy it is advisable to begin the administration of vitamin C in the form of intravenous injections, since this makes possible the administration of larger and more effective doses than would be the case with oral administration.

**Deutsche Zeitschrift für Chirurgie, Berlin**

• 246 393 512 (Feb 24) 1936 Partial Index

- \*Mesenteric Lymphangitis N Kleiber—p 393  
Results with Riveting in Twenty Seven Cases of Fractures of Neck of Femur W Buchheim—p 439  
Experimental Studies on Fat Embolism Therapy E Rappert—p 449  
Influence of Pain on Breathing in Laparotomized Patients W Capelle—p 466

**Mesenteric Lymphangitis**—Kleiber presents observations on mesenteric lymphangitis in the surgical clinic of Pribram (Berlin) for the last ten years. Calcification of necrotic lymph nodes may follow other than tuberculous inflammation. The lymph current is not always constant and may reverse its pendulum like movement. By placing a depot of isamine blue under the serosa of the root of the mesentery and then producing an irritation of the corresponding coil of intestine the author observed the reversal of the lymph current away from the root of the mesentery and in the direction of the intestine. This experiment furnishes an explanation of the origin of the so called secondary abdominal diseases, as well as of the recurrences of local processes in tissues made allergic by previous inflammatory processes. The author was able to isolate bacteria from the lymph nodes in a number of cases the majority of which were tonsillitis. In mesenteric lymphangitis a tendency to recurrence, particularly in association with recurrent attacks of tonsillitis, is a characteristic feature. Whitish scars and strands in the mesentery are the anatomic signs of an old lymphangitis. The clinical picture of mesenteric lymphangitis resembles that of acute appendicitis. The localization of the pain corresponding to the inflamed nodes in the root of the mesentery is higher in the neighborhood of the navel. It is the cause of the so called navel colic of children. Acute lymphangitis is accompanied by a rise in temperature and leukocytosis. In about 50 per cent of the cases there was found at operation a serous or a slightly turbid exudate. The author has observed fulminant cases with signs of a general peritonitis without any tendency to localization. These cases terminated fatally regardless of whether the patients were operated on or not. As a rule acute cases with localization principally in the mesentery of the ileocecal segment subside in the course of a few days whether operation is performed or not. They display however a tendency to recurrence. The author considers an appendectomy indicated in these cases, even if the appendix does not show pathologic alterations. The lymphatic tissue of the latter may be the focal lesion. Signs of tonsillar involvement or a history of recurring attacks of tonsillitis accompanied by abdominal complaints is an indica-

tion for tonsillectomy. It frequently results in permanent freedom from abdominal complaints. The author obtained more encouraging results from protein therapy than from roentgen irradiation, diathermy or short waves in chronic neglected cases that recurred even after tonsillectomy.

**Klinische Wochenschrift, Berlin**

15 217 256 (Feb 15) 1936 Partial Index

- Role of Irritation in Pathogenesis of Human Cancer S Peller—p 217  
Fertility Vitamin E E Gierhake—p 220  
Carotene Vitamin A Metabolism of Human Fetus H Wendt—p 222  
\*Paradoxical Action of Quinine G Budelmann and G Krauel—p 225  
\*Influence of Cevitamic Acid on Coagulation of Blood L Cotti and P Larizza—p 227  
Type Constancy of Diphtheria Bacilli K W Clauberg, W Helmreich and R W Vierthaler—p 231

**Paradoxical Action of Quinine**—Budelmann and Krauel point out that large and moderate doses of quinine usually elicit a reduction in the temperature but that occasionally an increase in temperature is observed. The cause of this so-called paradoxical action of quinine is not known as yet. They cite a number of authors who have observed cases of paradoxical quinine action and describe a case of their own. The woman had a mitral stenosis and always showed an increase in temperature after the administration of quinine. She also had a thyrotoxicosis. To determine whether hyperthyroidism plays a part in the paradoxical action, the authors gave small doses of quinine to several patients with exophthalmic goiter, but they never observed the paradoxical quinine action. The patient was found to be sensitive to a number of medicaments. Her serum was subjected to refractometry. The curve in which the refractometric values were recorded ran almost parallel with the temperature curve. The authors assume that in the case under consideration the paradoxical quinine action was the result of a quinine hemolysis.

**Influence of Cevitamic Acid on Coagulation of Blood**—Cotti and Larizza find that parenterally administered vitamin C (from 50 to 100 mg daily for from five to eight days) exerts a considerable influence on blood coagulation. On the basis of observations on normal persons and on persons with various types of hemorrhagic diathesis (including hemophilia) it may be concluded that vitamin C promotes coagulation. However, the authors found that this action on the coagulation can be ascribed neither to changes in the protein constituents of the plasma nor to changes in the calcium and magnesium contents. They detected considerable quantitative changes in the coagulation ferments, but they concede that further studies will be necessary to prove whether and in what manner the coagulation ferments play a part in the action of vitamin C on the coagulation.

**Munchener medizinische Wochenschrift, Munich**

83 257 298 (Feb 14) 1936 Partial Index

- Congenital Amputation Amniotic Ligature Hypoplastic Limbs Peromelia G B Gruber—p 259  
Action of Morphine Scopolamine Preparation on Eupian and Its Change into Permanent Anesthetic E Redenz—p 261  
Progress in Recognition and Treatment of Brucella Abortus Infection R Fischer and P Schenk—p 263  
\*Treatment of Crural Ulcer Alke—p 270  
Silver Powder in Treatment of Female Gonorrhea Trenk—p 271

**Treatment of Crural Ulcer**—Alke first treats the existing eczema by rubbing in Wilkinson's ointment with a wooden spatula. The use of this instrument has the advantage that the scales are removed more effectively and the ointment reaches the diseased skin. The patient is told to continue this treatment at home once or twice a day. After a week the eczema although not as yet entirely cured, has usually improved to such an extent that treatment of the ulcer may be begun. First the ulcer is cleaned by means of benzine. Then a ball of cotton is grasped with forceps, dampened with water and dipped into resorcinol powder. This is dabbed on the ulcer until the granulations have an opaque appearance. Then after some ointment (except zinc paste) has been applied and a thin layer of gauze placed over the wound an air-tight adhesive bandage is put on. The patient is told to return after six or eight days, when the wound is treated once more with resorcinol powder and again bandaged air tight. The treatment

is repeated at intervals of six or ten days and cure is usually obtained after several weeks. In some cases healing does not progress and a tuberculous nature may be suspected. For the latter cases the author recommends roentgen irradiations of an intensity of one third of the unit skin dose to be applied at weekly intervals. After each irradiation the ulcer is bandaged air tight, but metal ointments must be avoided in the course of roentgen irradiations. It is important that the bandage over the ulcer is air tight, and if it should become loosened is the result of a reduction in the swelling of the leg it must be replaced. After the ulcer has healed, the after-treatment is begun. The patient is told to massage the area once or twice daily with an ointment. Wilkinson's ointment has been found most effective. This after-treatment must be continued until the formation of scales ceases completely and the skin has become soft. Usually this takes two or three months and should be resumed again as soon as scales commence to form. If the after-treatment is properly carried out the cure is usually permanent.

### 83 299 318 (Feb 21) 1936 Partial Index

- Comparative Studies on Most Common Disinfectants H. Kluwe and E. Maier—p. 299  
Atelectasis Massive Pulmonary Collapse and Related Postoperative Conditions Y. Henderon—p. 305  
Positional Nystagmus L. B. Seifert—p. 310  
\*Significance of Menstrual Cycle for Calculation of Date of Birth F. A. Wahl—p. 311  
\*Localized Atrophy and Hyperplasia of Subcutaneous Fat Tissues Following Insulin Therapy (Insulin Lipodystrophy) Case G. Dinkler—p. 312  
Vitamin A Therapy of Hypertoidism H. E. Dietrich—p. 313

**Menstrual Cycle and Date of Birth**—Wahl says that since the exact date of conception is often difficult to determine the calculation of the date of delivery is usually based on the first day of the last menstruation that is it is customary to add 280 days to this date. However the author observed that the date thus computed only rarely coincides with the actual date of delivery and also that the period of 280 days is too short in many cases. He also gained the impression that the date of birth is to a certain extent dependent on the menstrual cycle. He made studies in 5000 obstetric cases investigating (1) how often a mature child is born 280 days after the first day of the last menstruation and (2) whether there is a relationship between the computed date of birth and the menstrual cycles. Summarizing his observations he says that a mature child is born after 280 days in 65 per cent of women with a cycle of twenty-eight days. However in women in whom the menstrual cycle is longer than twenty-eight days the delivery takes place at a later date in more than 75 per cent whereas in women with a menstrual cycle of less than twenty-eight days the calculated date is not reached in approximately 80 per cent. The author concludes from these observations that in women with a menstrual cycle of twenty-eight days or longer measures to induce delivery can be postponed for a while in case the gestation has gone beyond the calculated term, whereas in women with a short menstrual cycle it is advisable to take measures sooner. Moreover in forensic problems in which the average length of pregnancy has to be estimated the dependence of the length of the period of gestation on the length of the menstrual cycles should be given consideration.

**Atrophy and Hyperplasia of Fat Tissue After Insulin Therapy**—Dinkler points out that whereas some investigators have observed atrophy of the subcutaneous fat tissue after insulin therapy cases of hyperplasia of the fat tissues seem to be less frequent. He has observed a mixed form of lipodystrophy namely atrophy and hyperplasia side by side. A diabetic woman gave herself one injection of insulin daily into each thigh. In the course of this treatment there developed in the upper parts of the thighs deep depressions indicative of atrophy of the subcutaneous tissues and immediately below these depressions there appeared cushion-like areas or hyperplasia. The author points out that both forms of lipodystrophy, as well as the dystrophic may be avoided by frequent injections at the sites of injection and perhaps also at the

## Wiener klinische Wochenschrift, Vienna

49 161 192 (Feb 7) 1936 Partial Index

- History of Male Sex Hormone and Its Effects on Mammals and on Human Subjects E. Steinach—p. 161  
Hormone Therapy of Habitual Abortion H. Kahr—p. 172  
Experiences with Freund's Cancer Diagnosis Berta Benda and J. Kretz—p. 174  
\*Transitory Influx of Bacteria into Blood Stream After Tonsillectomy J. Fischer and F. Gottdenker—p. 177  
Atypical Onset of General Military Tuberculosis H. Schipper—p. 177

**Bacteria in Blood Stream After Tonsillectomy**—Fischer and Gottdenker maintain that it has long been recognized that after tonsillectomy old processes, such as nephritis, polyarthritis or endocarditis, may flare up again or that septicemias may develop. In order to determine whether bacteria enter the blood stream after a tonsillectomy and whether these can be considered the cause of the aforementioned disorders, they made bacteriologic studies on the blood of fifty one patients who had undergone tonsillectomy. They detected bacteria (staphylococci, streptococci or pneumococci) in the blood stream of sixteen of the patients. They observed that the bacteremia reached its peak two hours after the operation and completely disappeared again from twelve to twenty-four hours after the intervention. They conclude that this bacteremia is neither unusually rare nor to be regarded as a threatening sign.

## Zeitschrift für klinische Medizin, Berlin

129 363 498 (Feb 8) 1936 Partial Index

- \*Subcutaneous Nodules in Chronic Arthritis Etiology of Articular Rheumatism G. Katz—p. 363  
\*Is Elimination of Hippuric Acid Following Tolerance Test with Penzoate a Useful Test for Hepatic Function? D. Adlersberg and H. Minkebeck—p. 392  
Behavior of Sorbose in Metabolism Resorption and Elimination of Sorbose and Its Action on Sugar Content of Blood and Urine H. Grieshaber—p. 412  
\*Idiotogenic Action of Sorbose in Diabetes Mellitus H. Grieshaber—p. 425  
Tests on Quantitative Irritability of Vasomotor Centers in Various Forms of Hypertension W. Kaab and F. K. Redlich—p. 455

**Subcutaneous Nodules in Chronic Arthritis and Articular Rheumatism**—Katz points out that nodal rheumatism is an occasional accompanying symptom of acute articular rheumatism. Small and large nodules develop during the articular disorder in the subcutaneous tissue, particularly at the sites at which the subcutaneous tissue is near the bone that is, where the fat tissue is slight on the forehead on the scalp along the vertebral column, on the ulna, on the tibia and on the back of the hands and feet. They frequently disappear rapidly. Histologic examination discloses that these nodules are neoplastic formations in the connective tissue. The author points out that Klinge has shown in studies on febrile rheumatism that these rheumatic granulomas may appear anywhere in the mesenchymal tissue (cardiac muscle, joints tendons and the vascular and neural connective tissue). Although there is an extensive literature on these nodules in acute articular rheumatism, little has been said about nodule formation in chronic arthritis, and it they appear they are often referred to as gout nodules. The author reports a number of cases in which chronic articular rheumatism and nodule formations were present. He believes that the chronic inflammatory irritations in the subcutaneous connective tissue which lead to nodule formation at certain sites may be caused by either the different organisms and their toxins, which produce the nonspecific articular rheumatism or by the spirochetes of yaws and syphilis. Aside from the multifactorial of the causal agents the aspect of the disorder is always the same. The author thinks that his observations are a new proof for the opinions expressed by Klinge and Weil namely that articular rheumatism is not always caused by the same virus but that from the point of view of the theory of allergy a reaction mechanism of the connective tissue is responsible. The bacterial toxins produce in the sensitized body a hyperergic reaction which in turn leads to granuloma formation the latter being perhaps further promoted by predisposition or mechanical factors (trauma).

**Tolerance Test with Sodium Benzoate for Hepatic Function**—Adlersberg and Minkebeck investigated the reliability of the sodium benzoate tolerance test for the hepatic function in normal persons in patients with various hepatic disturbances and in patients with other internal diseases. One

hour after breakfast (coffee and toast) the patient is given 59 Gm of sodium benzoate dissolved in 30 cc of water and then he drinks an additional 100 cc of water. The patient voids the bladder immediately after this and again four times at hourly intervals. Each one of the four portions of urine is examined for its hippuric acid content. The authors summarize the results of their tests: 1 In patients with disease of the hepatic parenchyma, the hippuric acid elimination is reduced. 2 The same is true of patients with mechanical closure of the bile passages, cardiac decompensation anemia cachectic conditions and so on. 3 When there are disturbances in the hepatic parenchyma it is probably the synthesis of the hippuric acid that is impaired but in the other disorders the resorption or the elimination is probably defective. So far it has been impossible to differentiate a reduced synthesis of hippuric acid from a reduced elimination and a disturbed resorption of the sodium benzoate. 4 Thus the hippuric acid test is not suited for the differentiation of an impairment of the hepatic parenchyma from other disorders of the liver, but it does indicate whether a disorder of the liver is progressing or disappearing. 5 Even if the test period is prolonged to six or twelve hours the differential diagnostic value of the test is not improved.

**Antiketogenic Action of Sorbose in Diabetes Mellitus**—Grieshaber found that, if patients with diabetes mellitus (with or without insulin treatment) are given twice or three times daily 10 or 20 Gm of sorbose, their acetone elimination can be reduced to one half or one third within a few days. Sorbose has a better antiketogenic action than corresponding amounts of levulose. In this respect its action is about like that of dextrose but its assimilability is inferior to that of several other sugars. If a part of the carbohydrates of the food (bread) is replaced by equivalent amounts of sorbose the elimination of the ketone bodies is reduced. Carbohydrate tolerance, blood sugar content and glycosuria are not impaired by the addition of sorbose to the food as is frequently the case with other carbohydrates when their addition to the diet becomes necessary on account of acidosis. The addition of sorbose permits a higher caloric diet particularly the more extensive use of fats, in diabetic patients with a tendency to acidosis. Under certain conditions it may permit a reduction or a complete cessation of the insulin medication. However, the action of equal amounts of sorbose gradually decreases and for this reason its intermittent use is advisable. Moreover, there are cases with slightly increased formation of ketone bodies which are refractory to sorbose. Sorbose can be used for sweetening purposes for the food of diabetic patients.

### Zeitschrift für Krebsforschung, Berlin

43 255 336 (Feb 8) 1936 Partial Index

- Influence of Diet on Growth of Inoculated Tumors. IX. Influence of Condiments. W. Caspari—p. 255  
Trichinosis and Cancer. W. Schmidt-Lange—p. 264  
Chemistry of Carcinoma. A. von Christmann—p. 272  
Fate of Cancer Cells in Lung. G. F. W. Kost—p. 291  
Carcinoma on Basis of Extensive Endometriosis. R. Hauser—p. 306

**Trichinosis and Cancer**—Schmidt-Lange states that it has been known for a long time that trichinosis and cancer may concur in human subjects. Moreover it has been proved in animal experiments that malignant tumors may be produced by some parasites (*Cysticercus fasciolaris* the larval form of *Taenia crassicoilis*). To be sure trichinellae have hitherto not been recognized as a causal factor of malignant tumors and the concurrence of trichinosis and cancer in human subjects has been designated as an accidental occurrence. However the author thinks that the observation of the simultaneous appearance of severe trichinosis and sarcoma in a white mouse indicates an etiologic relationship between the two processes, especially since the condition of the tumor indicated a time relation between the two conditions. The location of the primary tumor in an organ not involved in the trichinella infestation makes it appear likely that either the numerous young trichinellae that invaded the liver with the blood stream produced an irritation like that of a foreign body, or the waste products of disintegration and metabolism which in case of such a severe infestation enter the vital organs were the cause of the cancer formation. The author considers the trichinellae

not a cancer cause in the narrow sense of the word such as he had discussed in former studies on plant cancer and Rous sarcoma but rather one of the various factors ("polyetiology" according to Askanazy) that play a part in the etiology of the tumor cell.

**Fate of Cancer Cells in Lung**—Kost shows that three conditions may be differentiated in cancer cell embolism: 1 The inflow of the cells without a recognizable reaction. 2 The attachment of the cancer cells with fibrin precipitation and thrombus formation in which case the cells are destroyed or at least do not grow further. 3 The formation of a true metastasis, that is, the ingrowth of the carcinoma through the vascular wall and into the surrounding tissues. Once the tumor cells have reached the blood stream, they are intercepted at the nearest blood filter. The author thinks that this explains the high incidence of hepatic metastases, pointing out that primary tumors are rather frequent in the organs belonging to the portal system. The low incidence of pulmonary metastases seems unusual and this peculiar behavior of the lung has been discussed repeatedly. After reviewing some other reports, the author describes his own studies on the lungs of twelve patients with cancer. In two cases he found that the cancer cells that had been carried into the lung had formed metastases. In a group of five cases he detected neither pulmonary metastases nor cancer cells nor definite signs of a destruction of cancer cells. He considers three possible explanations for this negative result. Either no cancer cells entered the blood stream or they passed out again through the capillaries or they reached only some parts of the lung and escaped detection. In a third group of five cases the author detected carcinoma cells but no metastases. The presence of these carcinoma cells may be due to the fact that they reached the lung shortly before death and thus could not form metastases or the lung exerted an inhibiting effect on their growth. In regard to the latter possibility the author points out that some of the cancer cells were covered by thrombi and showed signs of disintegration, he discusses the causes of this disintegration.

### Zentralblatt für Chirurgie, Leipzig

63 433 480 (Feb 22) 1936 Partial Index

- Closure of Duodenal Stump in Gastric Resection According to Billroth II with Donati's Instrument. A. Wald—p. 434  
Urinary Retention and Intestinal Atony as Unusual Accompanying Symptoms of Hemorrhage from Gastric Ulcer. F. Melchior—p. 436  
Anesthesia with High Pressure Ether Vapor. M. Tiegel—p. 438  
Traumatic Subcutaneous Intestinal Prolapse. G. von Benkovich—p. 446

**Urinary Retention, Intestinal Atony and Hemorrhage from Gastric Ulcer**—Melchior says that peritoneal symptoms are usually absent in cases of hemorrhage from gastrointestinal ulcers. Impairment of the intestinal peristalsis is hardly ever observed and occasionally the motility is even increased. The author reports three cases, in two of which hemorrhage from gastric ulcer was accompanied by severe symptoms in the form of urinary retention with an overextended urinary bladder and in one of which the gastric hemorrhage was accompanied by an ileus-like intestinal atony. He is unable to give a satisfactory explanation for these complications.

### Sovetskiy Vrachebnyy Zhurnal, Leningrad

Jan 15 1936 (No 1) Pp 180 Partial Index

- Pathogenesis of Toxic Dyspepsia. G. N. Speransky—p. 1  
Differential Diagnosis of Acute Icteric Cholangitis and Acute Icteric Hepatitis. D. A. Kogan—p. 13  
Mucous Reaction of Pupils and Its Significance in Diagnosis of Pseudosyphilis. M. M. Cordon—p. 22  
Rare Localizations of Diphtheria. V. C. Evkin and N. M. Sheynbaum—p. 29  
Brucellosis as Source of Infection. I. S. Kuritskaya—p. 33

**Rare Localizations of Diphtheritic Lesions**—Evkin and Sheynbaum report an epidemic of diphtheria principally because of unusual localizations of diphtheritic lesions. Of the ninety-one cases observed twenty-five were of the skin, fourteen of the eyes, three of the ears, thirty-four of the nose, three of the pharynx, two of the mucous membrane of the mouth and ten of the vagina. In seventy-eight the lesion was single and in thirteen combined. The lesions of the skin were of particular interest. The authors emphasize that besides the typical

ulcerative diphtheritic lesions, there were atypical forms resembling intertrigo and impetigo-like eczema, varicella-like vesicles abscesses and paronychias with a most varied localization. The atypical forms occurring in otherwise healthy children may be the source of a spread of infection. In their cases diphtheritic lesions always occurred in previously injured skin. They may appear as primary isolated lesions or in combination with diphtheria of other organs. The bacteriologic diagnosis was negative in half of their eye cases in spite of the clear cut clinical picture and positive effect from administration of the antitoxin. Diphtheritic otitis may run as an ordinary purulent otitis. Small doses of antitoxin (from 8000 to 10,000 units) were sufficient to control the skin lesions. Diphtheritic lesions of the eye required repeated large doses up to 100,000 units of the antitoxin.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80 937 1068 (March 7) 1936

\*Epituberculosis M. de Bruin—p. 961

Gonorrhea Treatment of Women P. J. van Putte—p. 969

**Epituberculosis**—According to de Bruin the clinical symptoms and the roentgenologic aspects of epituberculosis favor in many cases the explanation that this disorder should be considered an atelectasis. As a proof of this concept the author describes a case of recurring epituberculosis in which necropsy established the anatomopathologic diagnosis of atelectasis. At times the infiltration consists probably of specific tuberculous tissue that may finally be completely resorbed. In other cases however, the changes should be considered in part or wholly perifocal reactions of a tuberculous focus. Persistent observations and extensive anatomopathologic examinations may finally determine the relative frequency with which these three modalities of the disorder occur.

### Acta Medica Scandinavica, Stockholm

87 365 598 (Feb. 18) 1936 Partial Index

Histologic Studies on Dementia Praecox H. Marcus—p. 365

Aspects of Lipoidoses Particularly of Schüller-Christian Type H. Sundelius—p. 402

\*Method for Obtaining Pure Native Fibrinogen from Human Blood E. Kjellin and F. Paulsen—p. 442

\*Reaction of Cancer Patients to Tuberculin I. Holmgren—p. 521

\*What Sodium Citrate Solution is Isotonic to Human Blood B. Hirschlaiff—p. 530

\*Acanthosis Nigricans—Improvement After Liver Injections B. Strandell—p. 551

Hepato-gastrotherapy Considered in Light of Deficiency Theory of Pernicious Anemia Is It Really a Substitutional Treatment? T. Tempka—p. 567

**Method for Obtaining Pure Fibrinogen from Blood**—Kjellin and Paulsen point out that it was determined by Theorell that in the electric field the blood proteins proceed toward the anode but with various velocities. The albumins progress with greatest rapidity, the globulins somewhat more slowly and the fibrinogens still more slowly. The authors used Theorell's modification of the U-shaped tube of Michaelis. A method is described by which fibrinogen in its native form can be isolated.

**Reaction of Cancer Patients to Tuberculin**—The studies reported by Holmgren were made on 1,200 cancer patients during the years from 1913 to now. He found that from 70 to 85 per cent of the cancer patients are anergic to tuberculin. They give no reaction in response to the first subcutaneous injections of from 5 to 20 mg. of tuberculin and after a series of injections has been made in the course of several weeks they tolerate without fever subcutaneous injections of from 2,000 to 3,000 mg. of tuberculin. The author is convinced that this anergy is not produced by cachexia but by a cause as yet unknown. To intravenous injections of from 20 to 200 mg. of tuberculin the cancer patients react with chills and malaise followed by a sudden elevation of the temperature which subsides again in from twelve to twenty-four hours. The patients become habituated to the intravenous injections as to the subcutaneous injections and quickly acquire considerable tolerance. Subcutaneous as well as intravenous injections of tuberculin exert a sedative action on the cancer pains and frequently also have a favorable influence on the general condition.

**Isotonic Citrate Solution**—Hirschlaiff shows that the sodium citrate solution that is isotonic to the human blood has a concentration of from 295 to 305 per cent. It can be pre-

pared by dissolving 3 Gm. of tribasic sodium citrate in 100 Gm. of distilled water.

**Acanthosis Nigricans—Improvement After Liver Injections**—A patient who had pernicious anemia and acanthosis nigricans was treated by Strandell with intragluteal injections of a potent liver extract. Not only the pernicious anemia but also the acanthosis nigricans was improved by this treatment. Later he gave injections of liver extract to a patient who had acanthosis nigricans but no pernicious anemia and found that a considerable improvement resulted. In view of the fact that acanthosis nigricans heretofore could not be improved by internal treatment, the author considers his observations on these two patients of interest, although he concedes that a definite evaluation of this treatment would be premature. He considers it possible that there are certain relations between acanthosis nigricans and the gastrohepatic physiology.

### Finska Lakaresällskapets Handlingar, Helsingfors

77 737 847 (Dec.) 1936

\*Anaerobes and Urinary Calculi B. Runeberg—p. 737

**Anaerobes and Urinary Calculi**—Runeberg states that calculus formation in the urinary tract is often accompanied by the presence of anaerobes in the urinary sediment. Since these bacterial forms are generally rare here, demonstration of anaerobes may occasionally assist in the diagnosis of calculi, especially when typical clinical symptoms are absent and the calculus cannot be demonstrated by roentgen examination.

[78] 198 (Jan.) 1936

Contribution to Morphology of Suprahyoid Muscles (Digastric Muscle, Stylohyoid Muscle, Mylohyoid Muscle) C. J. Johansson—p. 1

How Is Spherical Curvature of Cornea Deformed by Direct or Inverse Astigmatism? O. Heimonen—p. 40

\*Rat Bite Fever Treatment in Neurosyphilis G. E. A. Rothstrom—p. 51

\*Hypoproteinemia, Stasis Albuminuria and Cardiac Edema M. C. Ehrstrom—p. 59

\*Peculiar Form of Pulmonary Tuberculosis L. P. Dyggve—p. 68

**Use of Rat-Bite Fever in Treatment of Neurosyphilis**—Rothstrom says that the advantage of sodoku treatment over malaria lies in the relative ease with which patients in the large majority of cases overcome even greater sodoku infections, because of the slow rise and lytic fall of the temperature, an objection to the treatment is its long course of about one and a half months, which makes it more expensive than malaria treatment. Since malaria treatment leads to full remission in only about 40 per cent of the cases treated, recourse to another fever treatment is desirable in the cases without remission or with incomplete remission. In sodoku treatment a small number of animals is required, the rat bite infection can be interrupted at any time by arsphenamine preparations, the sodoku spirillum lacks neurotropy and the sodoku infection is dosable.

**Hypoproteinemia, Stasis Albuminuria and Cardiac Edema**—Ehrstrom discusses two personal cases of heart insufficiency and two from the literature in which a hypoproteinemia originated on the basis of stasis albuminuria and affected the development of the picture. Stasis albuminuria occurs in about half of the cases of cardiac insufficiency, but in only about 7 per cent does it exceed the theoretical threshold for the origin of hypoproteinemia by the loss of albumin through the kidneys. The percentage of stasis albuminuria is higher in the cases with hypertension than in those without. Consideration of a hypoproteinemic factor may be called for in the interpretation of cases with disproportion between edema and other symptoms of stasis. This factor may also to a certain extent affect the treatment of cardiac insufficiency.

**Peculiar Form of Pulmonary Tuberculosis**—Dyggve's patient a woman aged 22 without family history of tuberculosis, had twice had a serious, afebrile pleurisy. Laterally in the left lung roentgen examination showed a round, sharply defined shadow of about the size of a clenched fist which continued unchanged for about two years resembled a neurofibroma and moved on respiration. Operation revealed that the shadow was due to a cystlike formation. On histologic examination of excised tissue tuberculous granulation tissue containing tubercle bacilli was found. Thoracoplasty was followed by recovery.

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## THE TRAINING OF MEDICAL STUDENTS IN OBSTETRICS

CLINICAL TEACHING AND PRACTICAL EXPERIENCE  
AS ESSENTIALS

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"Ideally, all women should have the protection of delivery in hospitals under supervision of men trained in gynecology and obstetrics." The foregoing statement is one of the conclusions reached by Aldridge in an analysis of the end results of labor in 2,800 primiparas at the Woman's Hospital of New York, where he found that less damage resulted from so-called prophylactic methods, including outlet or low forceps with episiotomy, than with spontaneous deliveries. However, he is careful to limit his belief in the efficacy of such procedures to men adequately trained and to hospitals adequately equipped. It is doubtful whether there are enough institutional beds available even in large centers to provide the satisfactory outcome hoped for by Aldridge and thus it becomes necessary to balance the results obtained in such ideal hospitals with those of the home and of hospitals less adequately staffed and equipped than that institution.

### OPERATIVE DELIVERIES

During the last twenty years hospital confinements have increased in number to such an extent that, in most large cities, from 60 to 75 per cent of all deliveries are institutional. In this connection, however, a corresponding increased incidence of the termination of labor by operation must be noted, as shown in various reports on obstetric practice made public in recent years. These disclose without exception an unchanging and rather high mortality rate. The accompanying morbidity rate has received little or no attention. For example, Plass states that from a study of Middle West statistics he found an incidence of operative deliveries varying from 10 to 20 per cent. In his opinion this should be not more than 5 per cent. Plass's estimate impresses me as conservative in comparison with other figures. The report on maternal mortality made by the Academy of Medicine of New York City presents the results of an inquiry into sixty-seven representative local institutions in which 74.7 per cent of all the hospital deliveries occurred. Among these 24.3 per cent were operative. Approximately 348,000 live births took place during the three-year period under survey (1930-1932), of which it is estimated that over 69,000 were

terminated by operative delivery, or about 20 per cent for the entire city. It may be assumed that the remainder were spontaneous. A total of 1,300 deaths in women delivered at or after the twenty-eighth week included 729 after operative delivery, a rate of about 10.5 per thousand live births, and 571 after spontaneous delivery, with a corresponding rate of 2. If all the deaths are taken together it is found that about 46 per cent followed operative deliveries.

There are many other interesting things in this carefully prepared report. The cesarean incidence in one New York hospital rose from 2 per thousand deliveries in 1910 to 25 in the same number in 1927. It may also be noted that 3.8 per cent of all deliveries in the private pavilion were by cesarean section, as compared with 1.2 per cent in the wards. A similar distribution was noted in another institution, 4.98 per cent among private patients and 3.28 per cent among ward patients.

An investigation of similar character made by a special committee of the Philadelphia Medical Society and prepared by Dr. Philip Williams presents an equally significant picture. In a three-year period (1931-1933) there were over 68,000 hospital deliveries, with approximately 19,000 of these operative and 49,000 spontaneous, or an incidence of almost 28 per cent. An interesting side light on the question of operative deliveries is the statement that in a one-year delivery service of 142 births there were eighteen cesarean sections. In another general hospital maternity service with practically an open staff, there was an operative incidence of 50 per cent in the private floors and 4 per cent in the wards. Were patients in the latter group neglected? The final results did not bear this out.

A recent survey (1933) of the obstetric work in Louisville, Ky., showed that among 5,262 deliveries 58.75 per cent were conducted in hospitals and 41.25 per cent at home. Ten years previously the percentage of hospital deliveries was only 18 and the maternal death rate was rather low, 0.35 per cent, or 35 per 10,000 live births. In 1933 the operative deliveries including forceps, versions and cesarean sections totaled 706, or 24 per cent. It may be noted that in the private hospitals, where the "family doctors" did most of the deliveries, the operative deliveries were about twice as frequent as in the municipal hospitals, where about 46 per cent of all the institutional deliveries were conducted. The cesarean sections likewise were about double, in two the rate was over 6 per cent. The year following this report a rule was put into effect in one of the latter institutions that cesarean sections could not be done without consultation, this resulted in an almost immediate reduction in the number of cases.

Further statistics on the subject of operative deliveries could be quoted and it might be of interest to draw



comparisons with foreign institutions in respect to cesarean sections, for example. In the Dublin Rotunda in 1929-1930 the cesarean incidence was 1 to 100, at the Copenhagen Rigshospitalet during 1934 it was 1 to 184. These figures may be compared with 1 to 12 at the Boston Lying-In, 1 to 6 at Jefferson (Philadelphia) and 1 to 48 at the Chicago Lying-In Hospital. The Boston City Hospital shows an increase in cesarean sections from 26 per thousand in 1920 to 337 per thousand in 1929, other institutions report similar increases. In the New York series cesarean section was fatal in 310 cases among 793 deaths following operative deliveries—almost 20 per cent of the deaths during the three-year period from 1931 to 1934, excluding abortions and ectopic pregnancies.

The evident results from what should constitute a life-saving operation call for an inquiry into the relative frequency of cesarean section and the associated mortality. Many qualified observers believe that these results are due to ill advised widening of the indications, as well as quality, judgment and skill of the operator, together with operating in unsuitable surroundings.

The less frequent resort to cesarean section and other major operative deliveries in foreign maternity services may be explained probably in a number of ways, but one cannot help feeling that intervention is practiced on less evident indications in American institutions. This assumption cannot be regarded as otherwise than an indictment of the medical profession, and the latter must answer it. The evidence unfortunately cannot be brushed aside in the analyses of obstetric deaths that have been quoted, to which others may be added. The conclusion is reached that a reduction in maternal mortality is predicated first and foremost on competence, skill and judgment of the attendants, whether doctors, nurses or midwives. There are others, but these assume apparently a less important place.

In order to obtain a true insight into the situation, an effort was made in some of these studies to determine a preventability factor in the fatal cases by a careful scrutiny of the individual patients' records. The results are not very flattering to the medical profession. In the New York report it is claimed, for example, that the doctor must assume the burden of being at fault in more than half of the cases—in fact, as much as 65 per cent. Of course he was not the only one to be blamed—the patient herself as well as nurses, midwives and institutions all bear a share, but the doctor's seems to equal all the others combined. And why? Lack of competence, lack of judgment and carelessness are ascribed among the causes, and to these might be added lack of appreciation both on the part of the public and on the part of the medical profession of the proper conduct of childbirth. And why should there be such a lack of appreciation and how can it be overcome? I believe it is largely due to improper and insufficient training of medical students in schools and hospitals. Obstetrics should be made a major subject in the college curriculum, on a par with medicine and surgery and this can be done only by increasing the number of hours devoted to instruction and, above all, to providing practical experience.

#### EXPLANATION OF HIGH PUERPERAL MORTALITY

Palmer Findley conducted an interesting survey of obstetric teaching in 1928 in which he found that, while in most countries the time given to the teaching of surgery as compared with obstetrics is approximately

in the proportion of 2 to 1, in the United States it is in the neighborhood of  $4\frac{1}{2}$  to 1. It may be assumed that the consequences of inadequate attention to what should be made a major subject in the medical curriculum is reflected in the results of obstetric practice as they have been presented in recent years in numerous frank surveys. At any rate should one not give thought to what is self evident before one looks for more complex explanations of the relatively high puerperal mortality rates?

Therefore I have direct and cogent reasons for calling attention to the foregoing facts and figures about the increasing resort to operative deliveries in obstetric practice. For, if their possible significance in relation to the attendant puerperal mortality is borne in mind, such an admission might aid in finding a cause should it be desired to take the steps for instituting a remedy.

Success must be measured by results, in medical practice as elsewhere. If one would measure results in obstetrics by a reduction in puerperal mortality, it might call for a revision of methods and procedures which, judging from the rather high death rate associated with child bearing in this country, have not been completely satisfactory or successful. This rate, it must be noted, averages about 6 per thousand live births. Should it be accepted as irreducible?

Now, it has been found that the principal causes of death in childbirth are hemorrhage, shock, sepsis and toxemia, and for this group a preventable factor must be assumed if any degree of credit is to be given to the advances made in obstetric science and art. On what should this preventability factor be based? The answer may be found in the puerperal mortality studies of recent years, to which reference has been made. In practically all these, if the particular death was considered avoidable, the blame is fixed on the doctors in a large proportion of cases. May I repeat the reasons? Actual incompetence in the attendant, lack of judgment, lack of skill, inattention to the demands of the case, all are unhesitatingly put forward as having a direct bearing on the fatal outcome. If incompetence occupies such an important place in these accusations, it can be overcome only by the development of greater "respect on the part of the physician for the gravity of obstetric operations and educating him to a greater caution in attacking problems which are properly the field only of the highly trained obstetrician." This quoted statement brings me to the essential point of my thesis, namely, that the medical schools have not balanced in their teaching the practical with the theoretical side, or they have failed to accord to obstetrics its right and proper share in the curriculum.

#### VELD FOR PRACTICAL TRAINING

In forty-six medical schools in the United States that have been investigated recently by the American Medical Association, the number of deliveries required of each student before graduation is as follows:

- A Fifteen or more under supervision (as specified by Council on Medical Education and Hospitals), seven schools
- B From one to fourteen deliveries under supervision, twenty schools
- C One or more deliveries not complete supervision, sixteen schools
- D No deliveries required, two schools

The foregoing shows the lack of agreement and standardization in a most important teaching field and demands early correction if young physicians are to be equipped with an adequate knowledge of this essential



branch of medicine. Practical experience in deliveries with suitable safeguards can and should be provided, so that a student will be impressed duly with the significance of proper and adequate obstetric care. Attendance in the antepartum clinic and at a certain number of labors should be provided in hospitals directly associated with medical schools, or such practical training may be secured after graduation if the former was not available. At any rate, licensure to practice should include a requirement uniform throughout the country that the candidate has attended and conducted a definite number of deliveries, the number to be fixed possibly by the National Board of Medical Examiners or similar examining body.

In this connection another matter may be considered which has an important bearing on obstetric training. There are many large general hospitals in this country without maternity services. Their interns have no opportunity to acquire knowledge in delivery procedures. Moreover, many are known to maintain an attitude of aloofness toward obstetrics and thus detract from the importance of the subject as an essential element in the training of their intern staff. Objection has been made to the practice of obstetrics in a general hospital. This is quite another matter and I am not prepared to discuss the question, but I do feel that the importance of an adequate training in obstetrics by every hospital graduate is paramount. If it cannot be provided in the institution arrangements should be made to obtain it elsewhere under proper affiliations, so that every intern would be assured of this important element in his training. The American Medical Association and the American College of Surgeons might well make a concerted effort to incorporate such a requirement in the intern teaching curriculum of every general hospital. I believe that this step would do much to dignify the position of obstetrics in the minds of recent graduates in medicine.

May I be permitted to reiterate my contention that a thorough knowledge of obstetrics should be an essential in the training of every physician. If he decides to go into some other special field this need be no hindrance and if he goes into general practice he will have more opportunities for deliveries than he will for appendectomies or cholecystectomies. Therefore he must be fully prepared and, as pregnancy and labor are largely normal processes he must be thoroughly grounded in their physiology and mechanism. I sometimes feel that the designation of labor as a surgical procedure is an error. Truly it must be conducted with due regard to the principles of surgical cleanliness, but an expansion of this idea has led many students to interpret it necessarily as an operative procedure. Intervention, however frequently spells trouble especially if carried out by incompetent persons.

How can the gap be bridged between theoretical knowledge acquired by the student in his medical school and its application as executed by him in the role of a practitioner? If the graduate in medicine has failed to realize that in most pregnancies he is a guide and mentor selected to steer his patient between Scylla and Charybdis but interprets the case as essentially a surgical possibility, a continuation of those unnecessarily high mortality figures associated with obstetric practice in this country must be expected.

Obstetric science has progressed to a degree at which books of encyclopedic dimensions seem required to encompass all the knowledge which has accumulated

since that period half a century ago when a single volume textbook of moderate size was sufficient for all purposes. Most of this accumulated knowledge will never become available to the student, but the attempt to include much of it in the curriculum is apt to confuse his mind, he loses sight of the well known facts about pregnancy and labor in the maze of chemical, pathologic, serologic and other details of value in themselves but not essential to acquiring a working knowledge of obstetrics. Obstetric care must be simplified and made less complicated. The test tube and the kymograph seem to have displaced the hand, the eye and the stethoscope. Though this statement may perhaps be a mild exaggeration, the fact remains that obstetrics is being practiced largely as a surgical specialty in many places and with questionable results if we are to judge the outcome by the present mortality rates. It would appear necessary to shift this point of view and to increase clinical teaching on the patient rather than to devote more time to the microscope and the chemical laboratory.

As a result of certain tendencies manifested in some leading maternity hospitals apparently a comparatively small group of superobstetricians are being educated who cannot help being permeated with the idea that pregnancy is an abnormal process and must be treated as such. Rather a knowledge of the subject should be inculcated into the minds of the student and intern body which will make them realize their proper function as guides and supervisors rather than as operators. This requires a close contact between student and teacher and patient, a contact that is not always possible in all its aspects in a hospital alone. I believe that much of this knowledge can be obtained in home delivery service. The suggestion that this type of clinical work be extended may meet with opposition but the results speak for themselves. I believe that every medical student should conduct personally, under direct and proper supervision, at least twelve, but preferably more confinements and that a certain number of these should be in homes. This would mean naturally that such patients must be carefully studied beforehand in the antepartum clinic as to their suitability for domiciliary care, that a change of sentiment must be developed among certain population groups to have their babies at home and that safety of the mother is not sacrificed by this procedure. On the contrary, clinical opportunities of this kind will indelibly impress on the student the fact that labor is a physiologic process, that it can be conducted in simple surroundings, that routine narcosis or analgesia is not essential, that operative deliveries must present clear-cut indications and can be done only under proper auspices, and that their need can usually be predicted in advance. Services of this nature have been conducted in various places, their value and success may be measured by the low mortality and morbidity among their patients. At the old Living-In Hospital in New York, for example thousands of women were successfully delivered in their homes by students and interns under careful supervision. In Chicago there is being conducted an outdoor service in which during a two-year period from 1932 to 1934, over 6,500 women were confined at home with only twelve deaths, a rate of 0.17 per cent. Of these, nine died after transfer to a hospital for various reasons. The operative incidence was about 4 per cent, mostly forceps. The deliveries were all carried out by interns and senior medical students and under careful supervision.

In other cities similar services have been conducted which, in view of the attendant low mortality and morbidity rates, must be regarded as successful and adequate for the population groups which they serve. They have shown among other things that women who are up and about get through with their labors in a shorter time, that less operative intervention is required, that less sepsis results, probably because there are fewer contacts. In addition, the fact is made self evident to the student that the processes of labor are essentially natural processes, that he must become thoroughly familiar with their mechanism, that accidents are possible but may be largely avoided by exercising a knowledge of their prevention gained through the medium of his previous theoretical instruction. It may take time to instill into the minds of teachers of obstetrics the practical value of more direct and responsible contact between student and patient, but it is only in this manner that the resourcefulness can be cultivated which is so essential in the conduct of labor. Obstetric improvement cannot be measured by successful delivery in a series of versions, forceps or cesarean sections conducted in elaborately equipped institutions, rather it must be gaged by the results in the country at large as measured by the prevailing maternal mortality rates, and these at the present time are none too favorable.

The question might be asked, Shall we throw aside accumulated knowledge of the science of obstetrics and practice it merely as an art? There is no need for this assumption. One must remember that pregnancy is not a disease, that it usually pursues a fairly normal course, that occasionally it develops pathologic aspects, that accidents in labor are comparatively rare, that adequate antepartum care will avoid such subsequent trouble. In assuming the foregoing, does it mean that science is to be sacrificed for art? Not at all. On the contrary, theoretical and didactic teaching is essential to a proper understanding of the phenomena of pregnancy and labor, but it must not be permitted to cloud the issue. I feel that practical experience gained by actual contact with patients, preceded by properly acquired theoretical knowledge, will do much to establish a definite relationship between the art and science of obstetrics which cannot but redound to the credit of the medical profession.

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**The Floor of the Third Ventricle**—The third ventricle is a midline cavity. In cross sections of the brain it is somewhat lenticular in shape while in sagittal sections it appears more or less trapezoidal. Rostrally it is connected with the lateral ventricles by the foramen of Monro and caudally with the fourth ventricle by the aqueduct of Sylvius. In the dorso-ventral direction the rostral boundary is formed by the foramen of Monro, the anterior pillars of the fornix, anterior commissure and lamina terminalis. The floor is formed by the optic chiasm, infundibulum, tuber cinereum, corpora mamillaria posterior perforated space cerebral peduncles and tegmentum of the midbrain. Ventrodorsally the posterior boundary consists of the rostral end of the aqueduct of Sylvius, posterior commissure, pineal recess, pineal body and suprapineal recess. The roof is composed of a thin layer of epithelium stretching between the thalami (velum interpositum) which covers the parasagittal strips of choroid plexus which run throughout the length of the roof of the third ventricle. The lateral walls are formed by the medial surfaces of the thalami and the hypothalamus.—Davidoff L. M. and Duke C. G. The Demonstration of Normal Cerebral Structures by Means of Encephalography. V. The Ventricles, Interventricular Foramina and Aqueduct of Sylvius. *Bull Neurol Inst New York* 4: 91 (March) 1935.

## THE PUBLIC HEALTH ASPECT OF THE TEACHING OF OBSTETRICS

IN UNDERGRADUATE MEDICAL SCHOOLS

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The maternal mortality rate has decreased but little during the last twenty years. This is in spite of important advances in other branches of medicine, including medical research and public health education.

It is the general opinion that the time allotted to the teaching of obstetrics is too limited. Rowland<sup>1</sup> has shown that 50 per cent of the general practitioner's time is devoted to medicine, from 25 to 35 per cent to obstetrics and the remainder to minor surgery, gynecology and a few special cases. In all the published curriculums, obstetrics, which occupies at least 30 per cent of the general practitioner's time, is allowed only 4 per cent of the total time provided for a medical course, while surgery, which occupies less than 10 per cent of the practitioner's time, is given from 15 to 18 per cent of the hours allotted to the medical course.

Questionnaires were sent to fourteen medical schools throughout the country and replies were received from eleven,<sup>2</sup> only one required a thesis in obstetrics for graduation. In six schools the course in obstetrics was a combined course with gynecology and the exact number of hours devoted to the teaching of obstetrics could not be ascertained. Approximately 150 hours is devoted to the teaching of obstetrics in lectures and practical work in the curriculums reviewed. The clinical facilities appeared to be very limited in the majority of schools answering the questionnaire.

The information supplied by the colleges answering the questionnaire indicated that the clinical facilities in the majority of instances are limited and in some the student is not required to attend personally any definite number of confinement cases. One school required each student to attend six cases, and the highest number required was twelve. The lectures and demonstrations are supplemented by ward rounds and the student is assigned to cases, which he follows throughout labor and the puerperium. Operative procedure in obstetrics, the diagnosis of fetal position and pelvic mensuration are given in manikin courses. Lectures illustrated by motion pictures also form part of the course. The internship on obstetrics in most of the hospitals is limited to two months. However, in three hospitals from which information was obtained, the internship in obstetrics is for a full year.

From the information obtained by questionnaire and the data presented by Rowland, it is apparent that medical schools should raise their requirements in obstetrics before granting the degree of doctor of medicine to include the following prerequisites: allocation of at least as many hours to clinical obstetrics as to clinical surgery, the provision of an adequate number of hospital beds and patients to furnish the necessary clinical material, detailed instruction in antepartum and postpartum cases, supervision of the students' dispensary and hospital work by a competent obstetrician, personal deliv-

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<sup>1</sup> Rowland J. M. H. Teaching of Obstetrics. *Bull. A. M. A.* Vol. 1, 82, 1925. Reduction of Mortality and Morbidity in Childbirth. *J. A. M. A.* 87: 2158-2159 (Dec. 23) 1926.

<sup>2</sup> Replies to questionnaires were received from the following medical schools: Vanderbilt University of Minnesota, University of Maryland, Yale University, Harvard University, Stanford University, University of Chicago, University of Michigan, Tulane University and Johns Hopkins University.

ery of at least twenty patients, and attendance on the delivery of numerous complicated cases in the hands of a master obstetrician. When one considers the emergencies encountered in the practice of obstetrics as compared with those met in other branches of medicine, the present division of time seems still less defensible.

Preventive medicine has worked wonders in reducing the mortality rate from many internal diseases. There is need for similar activity in the field of obstetrics. The development of more and still more teaching maternity hospitals for the better training of medical students, nurses and midwives in the art of obstetrics and the intelligent cooperation of the lay public and the profession in the care of the expectant mother will do for obstetrics what preventive medicine has done in the general field of medicine. However, an awakening of interest is going on in the preventive phase of obstetrics. The leaders in the field of obstetrics are stressing the need of vigilant antepartum care. It is this preventive phase of activity that gives promise of placing obstetrics more nearly alongside medicine and surgery in the onward progress of our science.

A better understanding of the needs for more intensive teaching in the public health aspect of obstetrics may be better appreciated by reference to the statistics on puerperal deaths. The puerperal death rates per thousand live births in the United States registration area show very little variation for the five year period 1930-1934. The highest rate for the period was 67 in 1930 and the lowest was 59 in 1934. In the United States registration area for the period 1930-1934 the total number of maternal deaths attributed to special causes was: abortions with septic conditions, 10,277, abortions without mention of septic condition (to include hemorrhages), 3,240, ectopic gestation, 2,926, other accidents of pregnancy (not to include hemorrhages), 523, puerperal hemorrhage, 7,085, puerperal septicemia (not specified as due to abortion), 14,741, puerperal albuminuria and eclampsia, 14,226, other toxemias of pregnancy, 2,605, and 12,041 due to other complications of childbirth. A total of 67,664 maternal deaths occurred in the five year period 1930-1934.

From the foregoing data, abortions, puerperal hemorrhage, puerperal septicemia, albuminuria, eclampsia and toxemias of pregnancy stand out as the cause of 77.1 per cent of maternal deaths during the years 1930-1934. The majority of these maternal deaths can be prevented. The medical officer of health of Newcastle suggests that the real cause of maternal mortality is the inadequate cooperation between the physician or midwife and the patient. The facts challenge the public health organizations and the medical profession to determine the reasons for this loss of life incident to childbirth and then, so far as possible, to prevent them.

If it is true that the majority of maternal deaths are preventable and that these deaths are largely due to albuminuria, eclampsia, toxemias of pregnancy and abortions, it is obvious that there rests great responsibility on our medical schools for more adequate teaching of obstetrics, including adequate preventive care. The importance of adequate antepartum care is generally recognized. It should include complete pelvic measurements, blood pressure determination, urinary analysis, complete physical examinations, Wassermann tests and appropriate arrangements for delivery.

The majority of the causes of maternal deaths have their beginning early in pregnancy and so far as the health department is concerned the most logical approach to the solution of the problem appears to be

the establishment of antepartum clinics conducted by competent obstetricians and the education of the women of the country to the necessity of consulting their family physicians early in their pregnancy, whether they are primiparas or multiparas, as the safe delivery in one pregnancy is no assurance against serious complications in a subsequent pregnancy.

The Maryland State Department of Health, through the Bureau of Child Hygiene and in cooperation with the county health officers, established antepartum clinics in 1928. The number of counties holding clinics gradually increased from one county in 1928 to eighteen counties in 1935, when 280 clinics were held throughout the year. The increase in attendance has been most encouraging—from fifteen in 1928 to 949 in 1935.

In 1934, of the 682 women attending the clinics 264 were white and 418 colored, 170 were primiparas, 504 multiparas and the data on eight are incomplete. Among this group, sixty were found with contracted pelvis, eighty-six had hypertension and seventy had syphilis. Four hundred and twenty-seven went through a normal delivery. Six deliveries were instrumental and eight cesarean sections. Five patients had a breech presentation. There were three operations and three miscarriages. Spontaneous abortion occurred twice and there was foot presentation in one case. One month after delivery, 444 mothers were investigated, of whom 436 were found well and eight ill. Of the 412 babies investigated, 398 were alive and fourteen had died.

During 1935 a total of 949 women, 341 white and 608 colored, made 2,007 visits to the antepartum clinics for examination and advice. Of the total number of visits made, 1,678 were antepartum visits and 329 postpartum visits. The attendance at the clinics has shown a marked increase and the service is apparently gaining favor with both the expectant mother and the practicing physician. In the counties in which clinics were held in 1935 a total of 980 Wassermann tests were taken, of which 16.3 per cent were positive. In the positive cases, either antisyphilitic treatment was instituted by the local health department or the patient was referred to a private physician for treatment.

The health officer of Worcester County reported in 1935 that, of Wassermann tests taken in twenty-one antepartum cases, eleven, or 52 per cent, were positive. One woman in this series gave a moderately positive reaction with no history of previous primary or secondary lesions. She had one previous pregnancy in 1933, the child born alive to die two days after birth. Her husband gave a negative Wassermann reaction and it would appear that the woman's infection was congenital and that the latency of the infection prevented her from infecting her husband but was of a serious enough nature to be fatal to her child.

In 1916, 13.5 per cent of the white women in rural Maryland were delivered by midwives and in 1934 the number of deliveries by midwives had decreased to 5.4 per cent. For the colored population in 1916 the number of women delivered by midwives was 59.9 per cent and in 1934 had decreased to only 51.2 per cent.

The maternal death rate was 50 per thousand live births for 1935 showing a slight drop from the rate of 52 for 1934. Ninety of these mothers were white women and forty-seven were colored. Accidents caused fifty-nine deaths, septicemia forty, and albuminuria and convulsions twenty-seven. It is gratifying to note that no deaths occurred among the women who attended the antepartum clinics in 1934 and but one death in 1935 among the 949 women attending the antepartum clinics.

The 1,698 deaths under 1 year of age recorded in Maryland gave an infant mortality rate of 621 per thousand live births. This was by far the lowest rate on record and 11.8 per cent lower than the rate of 704 for 1934. The rate for white infants was 517 and that for colored infants 998. Fifty-three per cent of the total infant deaths occurred under 1 month of age. Diseases of early infancy, including premature birth, injury at birth and congenital debility, caused 43 per cent of the total infant mortality. This neonatal mortality and the loss of lives through stillbirths can be controlled only by continuous care of the mothers.

To say that adequate antepartum care is necessary to good obstetric practice seems superfluous. It is safe to assert that 50 per cent of the expectant women in the counties at present come to delivery without this care. Minimum standards of antepartum care should include general physical examination with measurement of the pelvis, and a visit to the clinic or family physician at least every three weeks up to the seventh month and fortnightly thereafter, at which time observations should be made to determine the progress of pregnancy. Toxemias of pregnancy generally begin early in pregnancy and the patient should be questioned as to such symptoms as headache, bleeding, edema, constipation, presternal pain, vertigo and disturbance of vision. Early and regular examinations of the urine and determination of the blood pressure will serve as indicators as to beginning symptoms of toxemia. The hygiene of pregnancy as to diet, rest and exercise should be outlined at the first visit and frequently referred to at subsequent visits. Urinary analysis, a Wassermann test and determination of blood pressure should be routine.

The student should be taught that the most intensive antepartum care will be of little avail if the patient is infected at delivery. As the majority of cases are infected by induction from without it should be impressed on students that, in most instances, watchful waiting is better than meddling intervention. Preparation of the patient should be as painstaking as for major surgery. Rectal examination to determine the progress of labor should be thoroughly taught and vaginal examination made only in exceptional cases.

The expectant mother must be taught to seek antepartum care early. I was gratified at a recent county medical meeting to hear a country physician say that lately a large number of women had called at his office for antepartum care. The reason for the sudden increase of interest on the part of the expectant mother, I was informed, was the articles published in the local newspapers by the state department of health on antepartum care.

Much can be accomplished by a local maternal welfare committee with the county as a unit. The program of such a committee should be based on a survey of maternal facilities of the county—a survey of all maternal deaths in the county with inquiry as to all the contributing causes. As public health officials, our opportunities of reaching the undergraduate medical students are not great—our greatest opportunity and responsibility is with the physician, public health nurse and the women themselves.

In rural Maryland an effort to reach the physician has been made by lectures under the auspices of the Bureau of Child Hygiene and the extension work of the University of Maryland Medical School. These lectures have been given to groups of physicians and nurses in a series of six lectures. Interest seems to

have been aroused and the attendance has been encouraging, numbering about twenty-five in the smallest group to about seventy in the largest.

Emphasis is placed on the need of having patients report early and frequently to the physician and the need of a simple but careful record of each case. The student should be impressed with the essential requirements—a record for birth certificates, the history previous to marriage, the history of previous pregnancies and the present pregnancy, and the relative value of various facts found. The previous medical history should ascertain the history of tuberculosis, cardiac trouble, scarlet fever, rheumatism and nephritis. In the obstetric history such information as miscarriage, forceps deliveries, toxemias, hemorrhage, stillbirths, infections and cesarean section should be recorded.

An intelligent correlation of facts found will determine the value of the history to the physician. A history that records a miscarriage in the first pregnancy, followed by normal pregnancies and labors, is not of such importance as one that records a normal pregnancy followed by one or two miscarriages, and a first labor terminated by forceps and followed by subsequent spontaneous labor is common, while one or two labors terminating spontaneously, followed by forceps deliveries in subsequent labors, may have a profound significance.

In these extension courses, the value of careful physical examination is stressed: the size and shape of the uterus, measurement of the pelvis and palpation of the fetus as to presentation and position. Emphasis is placed on the need of careful advice about exercise, diet, clothing and constipation, and it is urged that the patient report headache, constipation, edema, hemorrhage and pain and return at regular intervals. The instruction by the physician to the patient in the matter of preparation for labor, emphasizing the necessity for cleanliness, is stressed. The public health or welfare nurse should have careful supervision of all her cases. More confidence is frequently placed in the instructions given by the nurse than those given by the physician. The education of the public must come through women's clubs, church societies and political groups of women.

Rowland has suggested for propaganda to the lay public the following important facts: That child-bearing in this stage of our civilization is no longer necessarily a physiologic process, pregnant women should report to their physician as early as the condition is known, careful supervision at relative short intervals is necessary to prevent many of the complications of pregnancy and childbirth, headache, edema, constipation or hemorrhage of any degree may mean trouble if not relieved, examination of urine, blood pressure, measurements and weight of the mother should be a routine procedure, careful examination, including examination of the pregnant uterus and measurements of the pelvis, are necessary, careful preparation for delivery frequently saves trouble in labor, and, finally, the physician who wants no record of the patient's history, who does not require her to visit him regularly and who does not wish to know anything about her until she is in labor is not the physician who should attend her.

Some day women will learn that relief from past experience lies in competent scientific obstetrics. That day will be hastened if we prepare students to render the service the child-bearing woman needs, to apply preventive measures promptly and to secure for the maternity case the best of professional care.

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One should keep constantly in mind the main purpose of undergraduate medical education in discussing any phase of it. The principal objective is, to my mind, the laying of the foundations for a knowledge of medicine on which subsequent structures can be built for general or special practice and for teaching or research and for public health activities. It is not to be supposed that any student can be properly qualified to enter satisfactorily on any or all of these fields at the time of graduation. It is essential that the student should be able to correlate the various special fields of medicine in terms of the individual patient. He should also learn that while he is responsible for the care of the individual he has a large responsibility to the community in carrying on his professional work. He must be imbued with the idea that medicine has to do with prophylaxis as well as cure and that prevention of disease and maintenance of health are often of greater significance than the cure of an individual patient of some illness.

The teachers of obstetrics should attempt to inculcate these ideas into the minds of their students with regard to maternity care. It is also important to convey the idea that the purpose of obstetric teaching is not to enable one to take care of the condition of pregnancy, labor and the puerperium but to care for the complete woman who is at the time pregnant in labor or in the puerperium. The fact must be stressed that the woman is important not only for herself but also because of her relationship to the community.

In considering hours for students it must be assumed that each one of them is employing full time and energy in preparation for his life work. It is not the absolute hours arbitrarily assigned to different fields of medical study that are important, it is the relative amount required for each. Our efforts should be to keep the absolutely required hours at a minimum level and to maintain a ratio between the different branches of medicine which is consistent with their relative importance to the undergraduate student of medicine. It is essential to keep constantly in mind the underlying principle that the undergraduate student must acquire the fundamental facts of the science and art of general medicine. His knowledge of prophylaxis and cure are of vital importance both to the patient and to the community.

In arranging the curriculum it is imperative to keep in mind that all branches of medicine are closely correlated and that knowledge of one increases the knowledge of another. Internal medicine contributes much information of value to the obstetrician relative to various diseases especially those of the cardiovascular renal systems and infectious diseases. Surgery contributes enormously to the fundamental knowledge of operative technique and sepsis. Pediatric information is invaluable to the obstetrician who assumes responsibilities for mother, fetus and new-born infant. Medicine, surgery and pediatrics have much more in common with one another than they have with obstetrics except for the close association of obstetrics and pediatrics so far as infant care is concerned.

It must be remembered that obstetrics presents new aspects relative to history taking and methods of physi-

cal examination as well as of terminology and a physiology and pathology that are essentially different from any of the other branches of medicine. The physiology and pathology are essentially the same for the other branches of medicine except for the variations due to age, structures involved, and so on. Of course the treatment varies, being nonoperative in pediatrics and medicine and operative in surgery.

It is therefore essential that sufficient time be allowed to the student in which to acquire knowledge of the more remote results of obstetrics which are apparent in gynecology as well as to acquire knowledge of the fundamentals. Much of the student's time in hours can be conserved if obstetrics and gynecology are taught by members of a combined department rather than by those of different departments, and the data will be better coordinated. Many of the disorders of the female genitalia are the result of childbearing, and the student should derive a better understanding of the sequence of events if the instructor traces their development from the delivery of the infant to a later period of the woman's life. This can be done best in a unified department of obstetrics and gynecology and affords better preparation for the prospective doctor to care for his female patients through their life cycle.

The advantages of such a combined department for the undergraduate student are the greater facilities that may be obtained, by the avoidance of unnecessary duplication, for the same budgetary expenditure, better correlation of factual data, and a clearer picture of the life cycle of the patient. The inspiration of the student should be greater and the instruction better because more capable men should be attracted to this combined field on account of the greater opportunities afforded for service, study and investigation. Such a stimulus and opportunity should tend to obviate mediocrity in the teaching of obstetrics.

There is not sufficient time to discuss the details of the instruction which should be imparted to the student. In general he should acquire the necessary knowledge regarding preconceptional, antepartum, delivery, postpartum and postnatal care. In short he should know the fundamentals of human reproduction from a medical point of view at least.

How is this knowledge to be imparted? It can be acquired by reading, but formal instruction should be of added value because an experienced clinician and teacher can select the essentials, stress the more important details, and clarify the obscure facts. A certain amount of formal instruction would seem to be necessary. The opportunity to see, examine and follow both normal and abnormal cases affords the very best means of instruction. It should be possible to observe patients who are ambulatory, those who are confined in the home or hospital, and those who pass through an uncomplicated or a complicated puerperium. There are many conditions which can be demonstrated clearly by pictures, both still and moving, by models and by manikins which cannot be shown well on the living subject, as too much has to be left to the imagination. It is possible to have the student practice many procedures on the manikin which one would not be justified in permitting on the living woman.

Instruction in obstetrics is fundamental and vital for the adequate care of the individual woman and for the best interest of the community. Much of the ignominy that has been heaped on obstetric practice on the score of maternal mortality could have been prevented by better educational methods in the past and by better facilities in the present. I would stress again that mor-



tality is only one criterion of results. The fact should not be lost sight of that great relief of pain has been obtained by the use of analgesics and anesthetics which do increase the risk to life both directly and indirectly even though the increased hazard is very slight. It should be recognized that longevity has probably been increased for both the mother and the infant by modern obstetric practice. It should not be forgotten that much of the disability that previously arose has been reduced. Certainly fewer genital fistulas are seen and one would hardly deny the probability that the remote results of trauma, such as genital prolapse, are less common today than they were a generation ago.

While the number of fatal cases of sepsis and of toxemia have not been materially reduced, apparently those fatalities resulting from the delivery of viable children have been curtailed and the serious sequelae in those women who have lived have been lessened.

Lastly, the blame for the high maternal mortality rate has been placed on the increased incidence of obstetric operation with apparent ignoring of the probability that not the operation per se but its improper selection and performance is responsible. Surgical procedures have increased enormously for numerous conditions which produce disability or cause discomfort but do not threaten life. The newly graduated student is not considered competent to perform these operations.

It should be emphatically stated that the delivery of ten, twelve or fifteen obstetric patients by any student does not qualify him to perform obstetric operations.

One important fact for every doctor and for every medical institution to recognize is that while a graduate and licentiate may be legally entitled to practice the science and art of medicine in all its branches he is not necessarily qualified to do so. Both he and the institutions in which he works and society must realize that such is not the case.

Undergraduate teaching in obstetrics as well as in other branches of medicine lays only the groundwork for practice. Unless the student is taught and made to realize what he can and should do as well as what he cannot and should not attempt, the education has been a failure.

Emergencies always constitute exceptions and unfortunately there is no field of medical practice in which sudden emergencies are fraught with so great dangers to two individuals so frequently.

Instruction and facilities for undergraduate obstetric education are still inadequate, but our facilities are not all being utilized for either undergraduate teaching or the training of interns.

Many schools have inadequate hours and facilities for proper obstetric teaching, especially from a clinical point of view. There are many hospitals in which maternity cases are taken care of and in these more teaching should be done, but they must conduct their maternity care on a plane high enough to give proper instruction to the students and to the interns who come under their egis. One vitally important factor for teaching in these institutions is a well trained staff which is interested in teaching proper maternity care.

Obstetric teaching of undergraduates requires adequate proportionate time, ample facilities and capable instructors. It is important to carry out this program in all schools as quickly as possible, because even after they are accomplished it will still be ten or fifteen years before the results are generally realized by the public.

5841 South Maryland Avenue

## USE OF THE OUTPATIENT DEPARTMENT IN MEDICAL EDUCATION

### NEWER POINTS OF VIEW

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A properly organized and conducted outpatient department offers educational opportunities for the medical student, intern, practitioner, nurse and social worker which cannot be duplicated in the classroom, the hospital or private practice. The type of training that is offered in the outpatient department is absolutely essential for the complete education of the physician or nurse.

Great changes have taken place in medical education in the past generation. It has come to be realized that the student must be taught more than disease pictures and the underlying sciences. The physician now occupies a different place in society. The physician is no longer thought of merely as a person who is called in to minister to the acutely ill patient. The medical course has been arranged so as to equip the physician to take his place in the changing social order. Subjects have been introduced in the medical curriculum that previously were never considered. There are departments of preventive medicine, of psychobiology, of social service. The student studies more than disease; he studies man as an individual both in health and in sickness, as influenced by his environment. Preventive medicine is emphasized. There has come a greater appreciation of the importance of the psychologic approach to medical problems. This does not imply the psychiatric approach. Almost every patient presents a psychologic problem, rarely a psychiatric one. The psychology of medicine can properly be studied only in connection with the general examination of the patient, not as an isolated subject. The social aspects of medicine are now appreciated as never before. Medical economics has become a very live and pertinent subject. None of these subjects can be taught didactically in the classroom. They can be taught but imperfectly in the hospital wards. It is in the clinic that the student learns them through actual practical experience.

An outpatient department of the right type is a model institution for the care of the patient, and this implies more than the mere relief of medical symptoms—it implies complete health service. The clinic should function not only to cure the individual when he is sick but to keep him well. The modern outpatient department is very different from the older type of dispensary, which was little more than a medical "soup kitchen" from which drugs were dispensed for the relief of urgent symptoms, and where little or no effort was made to render adequate medical service by way of complete medical examination, diagnosis or treatment. The modern clinic differs also from the older type of hospital outpatient department, which was operated largely as a "feeder" for the hospital. The modern clinic attempts to keep the patient out of the hospital if it is at all possible to do so and still render adequate medical service. In the proper type of clinic the same standards of thorough examination are adhered to as

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in the hospital. Unless an outpatient department is properly conducted, it serves no useful purpose in medical education. Indeed, attendance of a student in a poorly conducted dispensary may actually be detrimental to him in establishing bad habits of cursory examination or inadequate handling of patients.

#### ESSENTIALS OF AN OUTPATIENT DEPARTMENT

The first and most important essential of an outpatient department that is to be of value from the teaching standpoint is a competent staff. It takes a much better man to detect from the history or symptoms the premonitory evidences of disease than to diagnose serious illness after marked pathologic and physiologic changes have occurred in the body. Almost any physician may become familiar with the textbook descriptions of serious disease. There is little in the textbooks on the subject of the ambulatory patient and the early evidences of disease. That can be learned only from the most careful observation of many patients of different types. Normal physical diagnosis is spoken of, yet different individuals fall into different types and the physical signs are quite distinct. Failure to appreciate this may lead to gross misinterpretations of the conditions found. The keenest clinicians and the most accurate observers are those who should care for patients and teach in the outpatient department. In every division of the clinic there should be present daily at least one senior physician who serves as a consultant to the other members of the clinical staff and who actively participates in the teaching of students. Attendance in the outpatient department should not be below the dignity of the head of a clinical department.

The staff must have available necessary facilities for as complete examination and treatment as is possible in the case of the ambulatory patient. There should be clinical pathologic, chemical, metabolic, electrocardiographic and radiologic laboratories easily accessible and departments of physical therapy and mechanotherapy. A properly organized social service department is essential, for with many patients the social service department can supply essential information that may be the most important factor in the patient's condition and in his treatment.

Complete and accurate records filed so as to be readily accessible are as important in the outpatient department as in the hospital. It is most desirable that the outpatient record should be continuous with the hospital record for those patients who are hospitalized.

An outpatient department is to be judged by the character of the work done rather than by the size of its clientele. It is essential therefore that the clientele be strictly limited to the number of patients who may be adequately examined. For the best work an appointment system is necessary, at least in certain of the major clinics such as general medicine and pediatrics. Except in the case of obviously minor or uncomplicated conditions such as injuries, refractive errors, certain orthopedic conditions and parasitic skin diseases, every patient on first presenting himself to the clinic should receive a complete medical examination, and information as to social conditions should be obtained. The shunting of patients by a person at the admitting desk to special clinics on the basis of what the patient states to be his chief complaint all too often results in entirely inadequate examination and medical service.

When a patient applies to a clinic for treatment, it is the duty of the clinic not only to relieve the chief com-

plaint but to make a complete health appraisal and to investigate the patient's past history for any circumstances that might reveal the existence of conditions other than those which impel the patient to seek medical advice. The story of the patient's environment, his home and working conditions and his financial status may at times give information as important as a strictly medical history. The physical examination should be thorough, with special attention to the discovery of incipient disease. In very many instances there will be no definite physical signs, for the condition from which the patient suffers may not have brought about structural changes. The psychologic aspects cannot be neglected, for psychobiologic disturbance may be as incapacitating as organic disease. The patient as a whole must be considered. As aptly expressed by the late Francis W. Peabody, "A 'clinical picture' is not just a photograph of a man sick in bed, it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears. Now, all of this background of sickness which bears so strongly on the symptomatology is liable to be lost sight of in the hospital, I say 'liable to' because it is not by any means always lost sight of, and because I believe that by making a constant and conscious effort one can almost always bring it out into its proper perspective. The difficulty is that in the hospital one gets into the habit of using the oil immersion lens instead of the low power, and focuses too intently on the center of the field."

After the complete examination of the individual, which, as already stated, means more than the detection of physical signs, he should be referred if necessary to special clinics for examination or specialized methods of treatment but should in any event report back to the original examining physician for interpretation of the results, and complete recommendations as to care and treatment. It is this original examining physician (or student) who acts in the capacity of the patient's family physician. It is his responsibility to advise the patient not only as to the relief of symptoms but as to his entire health program. This obviously may involve much more than the taking of a bottle of medicine or having his nose sprayed or receiving a course of intravenous injections. The patient should be advised not only how to get well but how to stay well. Ideally the physician should visit the patient in his home, but this unfortunately not being practical in clinic organization, the social service worker vicariously performs this function and acts to interpret the physician to the patient and the patient and his surroundings to the physician.

If the patient has to be hospitalized, the clinic physician or student should if possible continue the care or at least observation of the patient. After relief of the prominent symptoms the patient should not be "discharged." He should continue to return at intervals for periodic check-up. This is the true ideal of the health clinic for the application of the principles of preventive medicine.

#### WHAT THE STUDENT CAN LEARN

An outpatient department organized as outlined provides the ideal training ground for the medical student or physician. In the hospital wards and in the autopsy room, attention is centered on disease rather than on the patient and here disease may be studied under most favorable conditions. Through the observation of a group of cases of pneumonia, the student learns the

manifestations of the disease, its natural course, diagnostic criteria, therapeutic indications and responses to therapeutic procedures. If the patient dies, the anatomic alterations produced may be studied. What the student studies is pneumonia rather than the patient who has accommodately developed the disease. Once the patient has recovered, the student, and all too often the physician, has but little further interest in the case. In the hospital ward the student learns about disease, in the outpatient department he learns how to practice medicine. By serving the clinic patient, he learns what service his own patients who come to him later should receive. The patient who has become incapacitated or who has developed some condition that interferes with his efficiency wants to know how he can be put in good shape again and get back to his job. He also wants to know how he can keep in good condition thereafter. In the clinic the student deals with the patient as a human being, not as a "case" of disease, and it is with human beings that the physician will later have to deal. Relatively little of his practice will be concerned with the serious illnesses requiring hospitalization.

A student working in the proper type of outpatient department quickly learns the importance of the personal relationship between physician and patient. He learns that every patient likes and needs to have some one person whom he can consider as his doctor and general adviser. The student gains a fuller appreciation of the invaluable service that may be rendered by the "family physician" or "general practitioner" and will become less inclined to feel that it is only the specialist who is worth while. The student learns the importance of the complete examination of the patient and is therefore not likely to develop into that type of specialist who sees but a single region of the body separated from the remainder, the type of specialist who tends to bring specialization into disrepute. More general practitioners of the better type are needed in these days, when there is too much of a tendency for the patient to make his own diagnosis and go to whom he assumes to be the proper specialist from whom all too often he receives advice and treatment that is entirely inadequate so far as his general condition is concerned or may be actually detrimental. Every patient needs a personal family physician who will be intimately acquainted with his whole history and surroundings and who will be able to advise the patient when the services of a specialist are necessary and interpret to him the recommendations of the specialist. It is while working in the general medical clinic that the student learns to play the role of the patient's family physician. Later as he works in the special clinics, the student learns to appreciate the proper place of the specialist and the attitude of specialists of the better type toward the general care of the patient. In the clinic the student also learns the value of the health clinic and the periodic physical examination—he learns in a very practical way preventive medicine in the antepartum and well baby and dietetic clinics.

#### THE ECONOMIC ASPECT

In this day of changing social conditions the physician needs to have a clear point of view concerning medical economics. There has been so much loose talk and acrimonious discussion on the part both of uninformed physicians and of uninformed laymen on the subject of medical economics that it is very neces-

sary for the young man entering the profession to know the real facts of the case. There is no better place to obtain first hand information concerning certain phases of medical economics than in a good outpatient department. The central problem of medical economics is how adequate care of the patient may be rendered and paid for. In the outpatient department the student learns the meaning of adequate medical care. He learns what that care costs in the time and effort of the physician and the nurse. He learns something of the accessory costs of medical care, including nursing service, drugs, laboratory procedures and hospitalization. He learns the attitude of the man in the street toward the physician and how little or how much the average person appreciates the time and effort expended by the physician. He learns the attitude of the average man toward the physician's charges, and above all he learns that in any plan for medical care the physician must be the central figure to whom all other instrumentalities are merely subsidiary. It is the doctor who must be the captain of the ship, however necessary the engineers and stewards may be. Through information obtained in the clinic directly from the patient or from the social service worker, the student learns the more remote but far reaching effects of disease on the patient's whole life and outlook. He learns that the cost of illness cannot be budgeted by the individual and that serious illness in the case of the person in moderate circumstances may mean financial ruin or the acceptance of charity.

The student learns that a well organized clinic can give adequate medical care with very great economy of operation, and he cannot fail to realize that, the more the overhead costs of rendering medical service can be reduced, the easier it becomes for the public to pay its bill for health service and at the same time to render to the physician the rewards to which he is justly entitled.

#### EDUCATION OF THE COMMUNITY

The outpatient department serves to educate not only the medical student, the nurse, the general practitioner, the specialist and the social service worker but also the public. Through outpatient departments the public learns the meaning of adequate medical care, and having once learned this it will not be satisfied with less. Well organized clinics invariably raise the standards of medical practice in the community. The fear has been expressed that patients who, as the result of the financial depression, have been forced to seek medical relief in clinics will, with the return of better economic conditions, be unwilling to return to their family physicians, that is, that they will have become "clinic minded." The physician who has been rendering adequate health service to his patients need have no fear. His patients will return, for in their minds he can never be replaced by the clinic. On the other hand, the patient who has not previously received adequate service may learn for the first time that such is the case, and in this instance it is not the clinic but the physician who is to blame.

General education of the community as to the meaning of adequate medical care can in the long run have only a good effect. When the public learns that adequate medical care is worth while, the public will demand it and will be willing to pay for it. The medical profession has always been willing to render that service and has never been better prepared to do so.

500 South Kingshighway Boulevard

IS ANESTHESIA BEING NEGLECTED  
IN THE MEDICAL CURRICULUM?

RESULTS OF A SURVEY

A L SCHWARTZ, MD

CINCINNATI

I made a survey of the medical colleges of the United States in an effort to determine the hours of instruction, both theoretical and practical, given medical students during their four years of work. It was felt that such information might be enlightening in its relation to the controversy of nurse versus professional anesthesia. The questionnaire which was sent to the deans of the seventy-four accredited medical colleges of the United States, received fifty-seven replies. As seven colleges have a medical curriculum of only two years, fifty replies were available for the survey.

Is there a course in anesthesia for the students? was the first question. Forty-five affirmative and five negative answers were received. The number of hours of theoretical instruction varied from four to sixty hours (in one college), averaging 10.8 hours or, excluding the college with sixty hours, 9.3 hours. The number of hours of practical demonstration varied from none to 150 hours, the average being indeterminate. Three colleges give no practical demonstration.

Is there a department of anesthesia in, or affiliated with, your college? was the second question and received ten affirmative and forty negative replies.

If not, which department supervises instruction in anesthesia? was the third question. The surgical department supervises instruction in thirty-six and the department of pharmacology in four colleges.

In analyzing this survey it is obvious that despite the inclusion of lectures in anesthesia to the students there is a wide variation in the amount of time devoted, with an average of about ten hours given to the entire subject of anesthesia. Furthermore, it is inconceivable that in five medical colleges there is no instruction in anesthesia. With regard to practical demonstration, the extremes are even more marked. Again it is inconceivable that anesthesia is entirely neglected or given only a meager amount of time in the medical curriculum. The summation of the replies to the second question may throw some light on the reason for this neglect. In only ten of the colleges that replied are there departments of anesthesia as a distinct and separate unit. To me, this survey indicates a deplorable inadequacy of training in anesthesia for the medical students.

Why should anesthesia be ignored in the medical curriculum? Anesthesia today requires careful comprehensive training to afford the patient the maximum benefit of the advances made in anesthesia during the past fifteen years. Why should patients have excellent surgical care and doubtful care from the standpoint of anesthesia? Is it not unfortunate that Dr. Lund of the Mayo Clinic in an address to the anesthesia section, must speak of the inexperienced and occasional users of anesthetic agents?

In addition to the inadequacy of training in the medical schools, the facilities for postgraduate training are limited. In a recent issue of *THE JOURNAL* the number of hospitals approved for residency in anesthesia numbered six. The total number of approved residencies

numbered eight. Such a small number certainly indicates either a lack of interest in anesthesia which is tragic or a disregard by the medical profession of the importance of training in anesthesia. Without well established anesthetic services in the hospitals there is no incentive to the younger graduates to go into a field of medicine that requires just as distinct and well defined training as any other specialized branch of medicine.

I was astonished at the situation evident in this survey and feel that the profession as a whole should be cognizant of the sad neglect of a branch of medicine that is so widely practiced and which so rightfully belongs within the bounds of the medical profession.

It is hoped that this survey may be instrumental in stimulating a renaissance of the instruction in anesthesia in our colleges and hospitals.

19 West Eighth Street

THE LABORATORY OF PATHOLOGY  
IN THE SMALL HOSPITAL

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In order to provide proper care for the patients, the smaller hospitals must offer an adequate laboratory service. If the attempt were made to provide all the special features of the laboratories of the larger hospitals, the expense would be out of proportion to the total budget for operation of the hospital. The cost per patient would be higher than in the larger institutions, for exclusive of endowments the cost of the laboratory work is borne by the patients, whether on a flat rate basis or on the basis of payments for each test. Nevertheless professional standards demand that the patient in the small hospital be given care at least equal to that provided in the larger hospital.

The features may be discussed from the point of view of physical plant and personnel. In this paper the major attention is paid to the latter. The amount of space to be allotted for the laboratory depends in certain measure on the amount and variety of work contemplated. In the life of a hospital plant the space originally assigned is usually smaller than what is ultimately required.<sup>1</sup> If the original amount of space should be too small, the cost of its enlargement may well prove to be a source of embarrassment. An estimate of the needs for a general hospital is in the neighborhood of 2,000 square feet of laboratory space for each 100 beds. If the proportion of maternity beds and bassinets is large, this figure may be somewhat high. If the medical and surgical services show a rapid turnover, the figure is low rather than high. Although the establishment of a laboratory service in a small hospital may seem amply provided for at the start with an amount of space less than that indicated, the work, when well done, usually increases rapidly in volume, and expansion of space is soon necessary. Work in a laboratory is not entirely dependent on floor

From the Institute of Pathology Western Reserve University and University Hospitals.

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<sup>1</sup> This may be interpreted as an adverse criticism of hospital architecture. In the long experience of the author, the criticism is justified. There are no records of too much laboratory space in the original design of a hospital and many of too little.

From the Department of Anesthesia and Gas Therapy, the Jewish Hospital.

area, but wherever possible provision should be made for about 2,500 or 3,000 square feet for the first 100 or 150 beds, to which should be added 2,000 square feet for each additional 100 beds. Inability to provide this much space should not discourage a small hospital from the inauguration of laboratory service. Nevertheless every effort should be made to avoid cramped quarters. Location is another item of importance, because light and ventilation are essential. Basements are for various utilities which do not include laboratories unless ample light and ventilation can be provided. Upper floors are far more suitable. Excellent laboratory work has been done in dark, inaccessible, cramped and poorly ventilated spaces, but precise laboratory tests have become essential to the best type of medical practice, and the physical plant should give every possible advantage to the laboratory workers. Pasteur did his early experiments in an attic and never required a palace, but when given the opportunity had a workshop with all the conveniences available at the time. The modern hospital laboratory worker is no Pasteur,<sup>2</sup> but his examinations require more exactitude than any of the earlier biologic work of that giant of science.

The equipment should provide for the more common and less complicated examinations. Thus it is necessary to make provision for the qualitative examinations of urine, blood, gastric contents and feces, as well as several of the less complex quantitative tests. If at all possible, provision should be made for the immediate chemical examination of the blood for carbon dioxide combining power, total nitrogen and sugar content. Blood typing and simpler bacteriologic tests are essential. Most hospitals with any considerable surgical service require equipment for the preparation of material for histologic examination. The autopsy service necessitates a complete equipment of instruments, table and plumbing. There are certain tests which, because of complexity, need for special apparatus and technical skill, and lack of urgency in report, may be delegated or "farmed out." These include, for example, certain blood chemical tests such as those for plasma proteins. Although often urgent, it may be necessary to delegate the various toxicologic determinations both qualitative and quantitative. Decision as to whether or not the complement fixation or other tests for syphilis shall be performed in a small hospital laboratory is often difficult. It must be decided on consideration of the training of the technician and the unit cost. It is almost certainly uneconomical to perform the Wassermann tests unless there are about 200 a week to be done. The factor of cost plays a much smaller part in the various precipitation tests for syphilis, but here the experience and training of the technician and the adequate control of antigen preparation are of the highest importance and it is certain that, unless the right technical service is available, even these tests should be delegated. It may be necessary, if animal quarters cannot be provided, to delegate hormone tests such as the Aschheim-Zondek or Friedman test. These may be urgent, as for example in suspected extra-uterine pregnancy, but, if the place to which they are assigned is not too remote, the delay may not be significant.

The personnel of the laboratory includes a director, house staff, technicians, and in some instances a record clerk.

It is common practice in some of the smaller hospitals to place the ward laboratory service in the hands of technicians. This appears to be due to a feeling on the part of the visitants that the work is better done in this way, and to a certain reluctance on the part of the house officers to perform this duty. Although in the past the first of these two reasons may have been good that time has passed. Graduates of modern medical schools have invariably been well trained in the routine examination of urine, blood, gastric contents and feces. They enter a hospital for the purpose of adding practical experience and closely supervised responsibility for patients to the groundwork provided by the medical schools. It is my considered opinion that a significant part of this postgraduate period should be practice and experience with these laboratory examinations, examinations that are the daily habit of the conscientious practitioner. The hospital that utilizes the technician for this purpose is delinquent in its duty to the house officers.<sup>3</sup> The house officers who in their first year or two of hospital training insist on having these tests performed by a technician neglect a real opportunity. They are required to make the examinations in most of the larger hospitals and should be so required in the smaller hospitals. The fact that this provision in the smaller hospitals would relieve the technician for more work of other types is only incidental and has no bearing on the educational principles involved.

The number of technicians to be employed depends on the size and character of the hospital and the volume of work required. If laboratory work is to be done at all, one technician at the least is required. It may be that the one technician can be so trained as to care for the ordinary routine of the clinical laboratory, as well as the radiologic and electrocardiographic departments. In no case, however, should the technician be so overloaded with work as to necessitate hasty examinations or be required to do things for which he or she is not fully trained and competent. The expense of adequate technical service is never an extravagance.

The most important item is the selection of a director of the laboratory. The problem of the smaller hospital is as to how the services of a well trained, experienced, competent pathologist can be obtained for this service at a cost which is not prohibitive. A small hospital may be so well endowed that it can afford a rate of pay attractive to a competent person, but unless it is large enough to provide material to occupy him and can support something in the way of a research program, the post will have no appeal to any but one who is satisfied to be a hired man.<sup>4</sup> It is possible that a hospital may be so remote from the medical center that it could not participate in a plan similar to that to be outlined, but with modern communications such an instance would be unusual. With few exceptions, it is probable that it is uneconomical for a general hospital of less than 250 or 300 beds to provide for the full time service of a competent director of laboratories. The problem, then, is as to how best to arrange for a part time director who will compare favorably with the director in the larger hospitals. It is of course possible for one person to serve several smaller hospitals. Often enough,

<sup>3</sup> The implications of this bald statement are humbly drawn to the attention of the Council on Medical Education and Hospitals.

<sup>4</sup> This is a generalization that may have exceptions in periods of economic distress.

<sup>5</sup> Pathology is a hazardous occupation even when cloistered. Thus the addition of the traffic hazard seems proportionately of little significance.

<sup>2</sup> This may underestimate the genius of some contemporaries. In the event of this remote possibility the author offers his apologies.

this means that not one of the hospitals has a large laboratory of the first class. If, however, he is connected with one high grade, amply equipped and fully manned laboratory, a satisfactory arrangement can be consummated. In this sense the laboratories of the smaller hospitals can be satellites to the sun of the larger institutions. That this arrangement is practicable is shown by experience in Cleveland and in certain other cities. In that city there are two such solar systems, the larger centered in the Institute of Pathology.<sup>6</sup> The institute, a part of Western Reserve University and its school of medicine, serves as a central laboratory for the university hospitals. The training given the assistants can thus be on a broad basis. In addition to the autopsy work and all varieties of surgical pathology, training is afforded in bacteriology, immunology, biochemistry and other routine. The institute furnishes, for part time service as laboratory directors in the smaller hospitals, men who have been given this well rounded training for three years or more after having had clinical internship. The amount of time to be given by the pathologists is settled after conferences between the hospital authorities and the director of the institute. The salary paid depends on the time required and the experience of the pathologist. Payment to the pathologist on the basis of number of examinations has been avoided so far. It is believed that if such a basis were adopted there might be some restriction on the examinations requested by the clinician, which at times might be detrimental to the best interests of the patient. For this reason the recommendation is made to the hospital that the cost of private accommodations be so adjusted that it includes the usual laboratory routine. Experience so far has shown that by this method the laboratory has not been exploited, except in a few rare instances. When this occurs, a conference between the hospital executive and the offending physician has resulted in understanding and cooperation. How far this principle may be applied to radiologic and electrocardiographic service differs with various hospitals.<sup>7</sup>

The time necessary for the work of the different hospitals varies. In one hospital, three visits a week are required. In another, the pathologist is present all of every morning. In two others, he visits every week and in still another he visits every two weeks. In the latter instances, specimens regarded as urgent in the intervals are sent to the institute.

The arrangement as it concerns the personnel of the institute varies. In one case, a senior assistant visits every week and has an assistant on the clinical staff of the hospital, not rated as a pathologist or even assistant pathologist, who "cuts in" surgical material and delivers the sections to the institute. Diagnoses are made solely by the pathologist. The weekly visits have to do principally with guidance of the technician and consultation with the staff.

Another senior assistant pursues the same general method with a hospital, which he visits every two weeks, except that in this case there is no assistant other than a highly trained experienced technician.

An intermediate assistant makes short visits three times a week to two hospitals and once a week to a third hospital.

Another intermediate assistant, somewhat junior to the one just noted, is on duty at one hospital all of every morning. For this service he is paid at a higher rate by the individual hospital than is true of the others.

It is apparent that the two senior assistants render their outside hospital service with practically no sacrifice to the work for which they are primarily employed. The first of the intermediates gives about half his time, somewhat irregularly distributed, to the university and the university hospitals, for which he is paid a small stipend. The more junior of the intermediates gives his afternoons to the university and the university hospitals. This is considered to be by far the less desirable half of the day, and his stipend is in the form of maintenance.

Although the contracts are made between individuals and hospitals, the arrangements are made with the director of the institute and in certain measure are under his control.

The hospitals so served are about 2, 6, 6, 6, 20 and 40 miles from the institute. The hospital 20 miles distant is visited once a week and the one 40 miles distant once every two weeks.

The advantages to the smaller hospitals by this arrangement are several. The director of the institute guarantees to provide a well trained and competent pathologist. This person has the backing and professional support and advice of the personnel of the institute. In case of difficulties he can immediately consult with any one of the four seniors, who have had many years of experience in pathology, bacteriology, immunology and biochemistry. The number of persons at the institute is such that in the absence of any one of the small hospitals' pathologists, either by illness or by vacation, his work can be carried on by one of the others. Thus the hospital work is covered at all times. This does not mean that always the visits to the hospitals are uninterrupted, but it does mean that diagnoses can be given at once.

The salary paid by each of the smaller hospitals is insufficient to pay a pathologist for full time service except in one instance, in which the amount would support a meager existence. This hospital, if it were not for the institute association, would be obliged to have as its pathologist a person inadequately trained for the responsibilities entailed and probably unsuited for connection with the larger institution. His chances for advancement in his field would be circumscribed by the necessity for self training and by a lack of opportunity for research. The part time given to the institute affords constant supervision in further building up of experience and training, ample consultation with older and fully competent pathologists, attendance on the weekly staff conferences, access to an excellent library, and favorable conditions for original investigation. The advantages to the institute lie in the provision of part time service of several workers who could not otherwise be held, as well as augmentation of wealth of material. Two spheres of influence are thus created, one in the university hospitals and those closely affiliated with the university, and the other in the smaller hospitals through the medium of their laboratories. It is believed that the insistence on precision, the constant interchange of views and the critical atmosphere of the institute are of educational and inspirational value in these spheres.

6 The other smaller in volume but with a hot sun and powerful gravitational force is centered in the Mount Sinai Hospital Laboratory directed by Dr. Benjamin S. Kline.

7 It is believed that the general plan here outlined is suitable also for roentgenology in the small hospital. It is difficult for the author to believe that a good roentgenologist can be at the same time a competent pathologist but he freely admits that it is almost as difficult for a good pathologist to be a competent roentgenologist. The precision of modern medicine cannot be harmonized with the combination of the two offices in one person.



The university hospitals routine in the institute is paid for by those hospitals. The director of administration of the university hospitals, by virtue of his sense of community responsibility and interhospital courtesy, has approved a plan whereby special tests, for which the smaller hospitals are not equipped, may be performed at the institute. Thus, uncommon biochemical tests, toxicologic tests, biologic tests, bacteriologic identification, immunologic studies, special stains and the like may be absorbed in the routine of the institute, without significant addition to its cost of operation. It is understood that so long as such tests are occasional the institute makes no charge. If they become frequent, a decision will have to be made as to whether the smaller hospital equips for them or pays the institute the approximate cost.

It will readily be seen that this principle provides for a complete laboratory service to the smaller hospitals. The application of the principle must vary in the separate instances with the particular needs to be met. The hospital has not available at all times the immediate service of a pathologist, but in all cases the pathologist holds himself ready to respond to emergencies and to perform such autopsies as must be done at times when he is not regularly at the hospital. The plan is adaptable to a wide variety of circumstances and furnishes laboratory service of the highest grade, suitable to the requirements of the hospital and to its purse. Its patients can be studied with thoroughness and precision. In practice over several years, the plan has been found to be satisfactory to the smaller hospitals and to the institute.

It is to be emphasized that this plan is established to provide for the smaller hospitals professional pathologists rather than to secure part time assistants for the larger central laboratory. It does not solicit part time service for the university work.<sup>8</sup> On the contrary, the centrum is the university laboratory and there the pathologist has his headquarters.

Potentially the plan has possible disadvantages. From the university point of view there is the danger that the part time assistants so provided may partly replace an instruction staff whose time and principal interest are devoted to academic work. This would undo all that has been accomplished in the building up of full time university personnel. From the small hospital point of view, the successful operation of the plan should not be permitted to interfere with the growth and expansion of the laboratory jointly with that of the hospital, so that as work and funds increase the hospital may have its own pathologist.

<sup>8</sup> This should not be interpreted as self righteousness. This department is grateful for the assistance of the pathologists of some of the larger hospitals in teaching and investigation.

**Amount of Food Required**—In general it may be said that the food requirement of a young to middle-aged man of average size without muscular work or physical exercise eating a mixed diet sufficient to meet his need approximates 2000 calories per day and that such muscular activity as is incidental to very quiet living indoors may be expected to raise this requirement to about 2200 calories per day. These estimates are for a normal man of average size weighing (without clothing) 70 kilograms or 154 pounds. Larger or smaller normal men will require more or less approximately in proportion to their weight when other conditions are uniform. Women average about four-fifths the weight of men and because of this difference in size they spend about four-fifths as much energy for like activity.—Sherman, H. C. Food and Health, New York, Macmillan Company, 1934.

## THE BLOOD IN ARTHRITIS

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During the last three years at the arthritis clinic of the New York Post-Graduate Hospital we have made various blood studies in chronic arthritis. Most of these data have been published in full elsewhere, but a summary and correlation of the material is timely. It may be said that as yet not one of the conditions found by any method of blood examination can be said to be entirely diagnostic. The cause of arthritis is still unsettled. Nevertheless we feel that some of the results summarized here are suggestive contributions to the solution of the arthritis problem. The distinction is continually made between rheumatoid arthritis and osteoarthritis. It is generally, although not universally, conceded now that they represent two distinct disease entities.

Most of the usual blood analyses, such as the routine chemical examination of the blood, have been found normal by many investigators as well as by ourselves. These negative results are not recorded here. The sedimentation rate of the erythrocytes is likewise not

TABLE 1—Summary of Abnormal Nonfilament Counts

	Rheumatoid Arthritis			Osteoarthritis		
	Number of Patients	Percent of Abnormal	Average Count per Cent	Number of Patients	Percent of Abnormal	Average Count per Cent
Average for entire series	100	96	29.6	100	53	21.6

discussed, except in relation to the serum protein studies, because this field has been well covered elsewhere in many publications.

### FILAMENT-NONFILAMENT COUNT IN CHRONIC ARTHRITIS<sup>1</sup>

The ordinary total white cell and differential counts have been found largely normal in arthritis by many investigators. We obtained similar results in forty-six patients with rheumatoid arthritis of whom thirty-six, or 80 per cent, showed total white blood cell counts between 5,000 and 10,000 cells per cubic millimeter, while the average differential count of polymorphonuclear neutrophils was 64 per cent. Almost identical figures were obtained by us in a group with osteoarthritis. Further analysis of the blood cytology by special methods however shows abnormal changes in the leukocyte picture in arthritis.

Schilling's modification of the Arneeth count has until recently received little attention in chronic arthritis. A number of workers here and abroad are in agreement that the Schilling hemogram indicates a "shift to the left" as a characteristic of rheumatoid arthritis in at least the greater number of patients reported.

A simplification of Schilling's method, wherein the polymorphonuclear neutrophils are divided into only

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From the Arthritis Clinic of the New York Post-Graduate Medical School and Hospital, Columbia University.  
<sup>1</sup> Steinbrocker, Otto and Hartung, E. F. The Filament-Nonfilament Count in Chronic Arthritis. J. A. M. A. 100: 654-656 (March 4) 1933.

two groups, nonfilamented and filamented, is becoming increasingly utilized and has been employed by us in the study of the leukocytes in chronic arthritis. The first group, or the nonfilamented cells, consists of the young neutrophils in which the nuclei are unsegmented or, if segmented, the nuclear parts are still joined by thick portions of nuclear material. The second group, or filamented cells, consists of those neutrophils in which a fine filament of chromatin material connects two or more segments of the nucleus, i. e., the true polymorphonuclear cells.

TABLE 2—Serum Calcium

Type of Case	Number of Cases	Mg per 100 Ce			
		Mean	Probable Error of Mean	Standard Deviation	Probable Error of Standard Deviation
Control (Greene and Boothby)	832	10.941	$\pm 0.015$	0.647	0.010
Rheumatoid arthritis	50	10.218	$\pm 0.067$	0.699	0.048
Osteo arthritis	50	9.986	$\pm 0.059$	0.616	0.042

We have found that the nonfilament count in 100 patients with rheumatoid arthritis was elevated in ninety-six patients, while in a group of 100 osteo-arthritic patients the count was above normal in fifty-three. The average nonfilament count in the rheumatoid group was 29.6 per cent, and in the osteo-arthritic patients with elevated counts the average was 21.6 per cent. The normal count is considered to be 16 per cent. Table 1 gives a summary of our results.

The high incidence of an elevated nonfilament count in rheumatoid arthritis suggests the presence of an infectious agent in this disease. The elevated nonfilament count in slightly over half of the patients with osteo-arthritis is worthy of comment. These abnormal conditions in osteo-arthritis may be due to associated rheumatoid disease or focal infection.

The filament-nonfilament count, we find, is a simple aid in differentiating rheumatoid arthritis and osteo-arthritis when within normal limits. A normal count indicates that rheumatoid arthritis is not present. An elevated count may indicate the presence of rheumatoid arthritis, mixed arthritis or osteo-arthritis with focal sepsis.

#### THE SERUM CALCIUM IN ARTHRITIS<sup>2</sup>

In rheumatoid or atrophic arthritis there is a general decalcification and rarefaction of the bones involved. This is most marked at the epiphysis, but the cortex of the shaft is involved as well. In osteo-arthritis or hypertrophic arthritis the process of decalcification is not so marked. There are characteristic cysts at the chondro-osseous junctions and a simultaneous deposition of new bone which produces exuberant at the areas denuded of cartilage, and calcified excrescences at the edges of the epiphysis. Most pathologists now consider that the fundamental and initial lesion in osteo-arthritis is an erosion of articular cartilage and that the calcified excrescences are secondary and perhaps compensatory in character.

So far, attempts to study the calcium balance in arthritis have produced negative results. Arthritis is a chronic disease and the disturbance in the calcium metabolism would probably be too small to demonstrate

conclusively in a balance experiment of a few days' duration. That there is, however, a disturbance in the calcium metabolism is indisputable.

Many attempts have been made to study serum calcium in arthritis. The technic for the determination of serum calcium is especially liable to technical error. The resulting marked variations in the results have led to confusion on this subject.

One of us together with Carl H. Greene studied fifty typical cases of rheumatoid arthritis and a like number of cases of osteo-arthritis, for the determination of the serum calcium. The Clark-Collip modification of the Kramer-Tisdall method was used. The analyses were all done in one laboratory.

The usually accepted normal range for the serum calcium is between 9 and 11 mg per hundred cubic centimeters. We used as our control group 852 cases reported by Greene and Boothby of the Mayo Clinic. Table 2 gives a summary of our results.

Thus we see that the values for the mean and the standard deviation of the serum calcium in a group of fifty cases of rheumatoid arthritis were  $10.218 \pm 0.069$  mg per hundred cubic centimeters. These values were essentially the same as those found in the control group.

The values for the mean and the standard deviation of the serum calcium in a group of fifty cases of osteo-arthritis were  $9.986 \pm 0.061$  mg per hundred cubic centimeters. The changes in the serum calcium in any individual case of osteo-arthritis are perhaps without direct clinical significance, but the trend in the group represents a statistically significant reduction in the mean calcium level. The reason for this change is not obvious. Its presence in osteo-arthritis and absence in rheumatoid arthritis are further evidences that these two conditions represent separate clinical entities.

This study of the serum calcium furnishes no evidence that the hyperactivity of the parathyroid glands is a factor in the production of arthritis.

#### THE CHOLESTEROL CONTENT OF THE PLASMA IN ARTHRITIS<sup>3</sup>

There are very few reported studies of the cholesterol metabolism in arthritis. The present investigation, carried out by Maurice Bruger and one of us, includes a study and statistical analysis of the cholesterol partition in the plasma in ninety-two cases of arthritis.

TABLE 3—Total Cholesterol Content of the Plasma

Group	Number of Observations	Arithmetic Mean Mg per 100 Ce	Standard Deviation	Probable Error of Mean	d σ D
Normal	5	194.7	29.9	12.42	6.0
Rheumatoid arthritis	3	111.2	21.5	4.60	2.27
Osteo arthritis	59	231.4	41.1	( )	5.20

Only typical cases of rheumatoid arthritis and osteo-arthritis were selected. In all the duration of the disease varied from three months to ten years. The blood specimens were obtained by venipuncture usually after breakfast. Free and ester cholesterol were determined by the Bloor-Knudsen method.

The plasma cholesterol in subjects with arthritis were compared with cholesterol studied in thirty-three normal subjects, all determinations being carried out under identical conditions in the same laboratory. Table 3 shows the results in thirty-three cases of rheumatoid arthritis and fifty-nine cases of osteo-arthritis, together with thirty-three normal subjects.

<sup>2</sup> Hartung, E. F. and Greene, C. H. The Serum Calcium in Arthritis. *J. Lab. & Clin. Med.* 20: 929 (June) 1935.

<sup>3</sup> Hartung, F. I. and Bruger, Maurice. The Cholesterol Content of the Plasma in Arthritis. *J. Lab. & Clin. Med.* 20: 675 (April) 1935.

In the rheumatoid group the average age was 39 years, 63 per cent of the patients were females. The mean total cholesterol was  $175.2 \pm 39.5$  mg per hundred cubic centimeters of plasma. In the osteo-arthritis group the average age was 51 years, 90 per cent of the patients were females. The mean total cholesterol was  $235.4 \pm 45$  mg per hundred cubic centimeters of plasma.

TABLE 4—Serum Protein Determinations in Osteo-Arthritis

Name	Total Protein	Albumin	Globulin	Ratio	Fibrinogen	Pseudo P I	Pseudo P II	Fu globulin	Sedimentation Rate
J G	6.75	4.25	2.51	1.60	0.90	1.9	0.57	0.44	5
F S	6.20	4.05	2.24	1.8	0.2	1.00	0.55	0.47	
J H	7.02	4.42	2.61	1.69		1.9	0.41	0.61	
D K	8.02	5.04	2.91	1.71	0.27	1.76	0.41	0.4	7
N R	6.90	4.4	2.5	1.70	0.32	1.28	0.4	0.42	4
M Z	6.77	4.06	2.1	1.62	0.1	2.27		0.11	
N D	6.85	4.29	2.56	1.68	0.42	1.25	0.59	0.0	50
C H	7.17	4.61	2.56	1.81	0.4	1.56		0.2	20
H M	7.58	4.67	2.91	1.9	0.36	1.60	0.41	0.54	10
I S	6.51	4.08	2.46	1.66	0.56	1.08	0.46	0.26	15
S B	7.23	4.26	2.97	1.4	0.46	1.44	0.62	0.47	1
S S	6.60	4.34	2.26	1.92	0.92	1.19	0.4	0.21	10
A S	7.3	4.90	2.48	1.92	0.28	1.26	0.48	0.46	2
K Z	7.25	4.54	2.71	1.67	0.26	1.14	0.69	0.67	8
Average	7.02	4.42	2.60	1.71	0.3	1.32	0.4	0.9	30

meters of plasma. The cholesterol esters in both groups showed a normal relation to the total cholesterol.

These results show that the plasma cholesterol tends to be low in rheumatoid arthritis and high in osteo-arthritis. That these results, especially those obtained in the osteo-arthritis group, are really significant is evident from the statistical analysis, the difference between the means of the normal group and the rheumatoid group divided by the standard error of the difference of these means gives a value of 2.27. This variation from normal is suggestive but not definite. The same calculations applied to the normal and the osteo-arthritis group show a figure of 5.20, indicating a significant variation from normal.

The observations recorded in this study that patients with rheumatoid arthritis tend to show a low blood cholesterol support the infectious theory of its etiology, since other acute infections are accompanied by a hypocholesterolemia. The tendency to an elevated blood cholesterol in osteo-arthritis, on the other hand, suggests the degenerative origin of this disease, since other degenerative diseases are usually accompanied by hypercholesterolemia.

Two explanations for the latter finding may be suggested: first, that patients with osteo-arthritis are obese, second, that they fall in an older age group. It has been shown however, by Bruger and Poindexter<sup>4</sup> that uncomplicated obesity is associated with a normal plasma cholesterol. Also there are few studies in the literature which point to an increased blood cholesterol in the aged. Bruger is of the opinion that the factor of age alone in no way influences the level of the blood cholesterol.

#### PROTEIN STUDIES IN RHEUMATOID ARTHRITIS AND OSTEO-ARTHRITIS

Since the reawakening of interest in the sedimentation rate by Robin Fareus in 1918, there has been an immense amount of clinical and laboratory investigation concerning the chemical changes in the blood which are responsible for this phenomenon. Boots and

Dawson<sup>6</sup> first called attention to the difference in sedimentation rate in rheumatoid arthritis as opposed to that in osteo-arthritis. Snapper<sup>7</sup> showed that the power of the red cells to settle at various rates in different diseases was dependent on three factors, i. e., cell volumes, plasma fibrinogen and plasma globulin. It was in order to determine just how these changes take place that this work was undertaken.

The total plasma protein, albumin, globulin, fibrinogen, globulin fraction pseudo I and II and euglobulin and sedimentation rate have been determined on numerous occasions on seventy-nine subjects. The analyses presented here cover only the determinations done on fourteen patients with osteo-arthritis and on sixteen with severe rheumatoid arthritis. The chemical analyses were done by Dr J. P. Chandler in the department of physiology of the Cornell University Medical College. The method of Howe was used. In table 4 are given the results obtained in the blood studies of fourteen cases of osteo-arthritis. These figures approximate the average normal.

In table 5 are given the results obtained in sixteen cases of severe rheumatoid arthritis. From the study of these tables it can be seen that there is a rise in the globulin fraction and a fall in the albumin fraction in rheumatoid arthritis. The greatest change takes place in the euglobulin. There is very little, if any, change in the protein fraction of those ill with osteo-arthritis. There is usually a rise in the fibrinogen in rheumatoid arthritis but the rise is not as great as that in the globulin. The fibrinogen content of those ill with osteo-arthritis sometimes rises, and this is usually the cause for the rapid sedimentation rate that is occasionally seen in those ill with this type.

Since the changes found in rheumatoid arthritis are characteristic of infection in general, this study gives further evidence indicating that rheumatoid arthritis is an infectious disease while osteo-arthritis is not.

TABLE 5—Serum Protein Determinations in Severe Rheumatoid Arthritis

Name	Total Protein	Albumin	Globulin	Ratio	Fibrinogen	Pseudo P I	Pseudo P II	Fu globulin	Sedimentation Rate
M M	7.54	3.56	3.98	0.90	0.68	1.89	0.66	0.75	12
L M	7.22	3.59	3.6	0.99	0.84	1.3	0.71	0.59	45
J I	8.15	3.65	4.50	0.82	0.77	2.04	0.68	1.00	
K J	5.70	2.32	3.38	0.69	0.53	1.70	0.5	0.67	
O J	7.35	3.89	3.46	1.01	0.57	2.40	0.6	0.80	07
C K	7.35	3.21	4.14	0.77	0.61	2.06	2.33	0.78	
F L	7.08	2.92	4.06	0.97	0.81			0.70	
O O	6.09	2.52	3.57	0.71	0.6	1.65	0.6	0.71	
L H	8.31	4.08	4.27	0.96	0.45	2.39	0.68	0.85	43
H L	6.73	3.01	3.72	0.81	0.61	1.61	0.80	0.70	100
L J	7.84	3.07	3.87	1.02	0.60	1.85	0.69	0.73	
A M	6.64	2.44	3.20	1.07	0.62	1.35	0.65	0.70	
J J	7.74	3.45	4.29	0.80	0.89	1.51	0.90	0.07	
M G	7.35	3.74	3.61	1.04	0.30	1.86	0.68	0.68	104
M C	8.12	3.86	4.26	0.91	0.49	2.02	0.76	0.99	60 fever
Average	7.32	3.63	3.69	0.98	0.69	1.81	0.68	0.74	85

#### AGGLUTININS AND PRECIPITINS IN ARTHRITIS<sup>8</sup>

During the past five years there has been a great deal of interest in the presence or absence of streptococcus agglutinins in the serums of arthritis subjects, especially those suffering with what is commonly called rheumatoid arthritis. The presence of agglutinins for various strains of streptococci is thought by some

<sup>4</sup> Bruger Maurice and Poindexter C. A. Relation of the Plasma Cholesterol to Obesity and to Some of the Complicating Degenerative Diseases (Diabetes Mellitus, Essential Hypertension, Osteo-Arthritis and Arterio sclerosis) Arch Int Med 53: 423 (March) 1934.  
<sup>5</sup> Davis J. S. J. Lab & Clin Med 21: 478 (Feb.) 1936.

<sup>6</sup> Dawson M. H., Sia R. H. P. and Boots R. H. Differential Diagnosis of Rheumatoid and Osteo-Arthritis. The Sedimentation Reaction and Its Value J. Lab & Clin Med 15: 1065 1071 (Aug.) 1930.

<sup>7</sup> Bendien W. M., Neuberger J. and Snapper I. Beitrag zur Theorie der Senkungsgeschwindigkeit der roten Blutkörperchen Biochem Ztschr 247: 306 321 1932.

<sup>8</sup> To be published.

workers to be pathognomonic of this form of arthritis. From these workers we are led to conclude that rheumatoid arthritis serums show a high titer of agglutination with certain strains of streptococci, whereas serums from other disease conditions and from normal persons fail to show as high a titer. If this were true, the agglutination test would be a valuable diagnostic aid and

TABLE 6—*Agglutination Reactions in Rheumatoid Arthritis, Osteo-Arthritis and Normal Conditions*

Number of Patients Tested	Bacterial Antigen Used	Per Cent Negative in All Dilutions			Per Cent Positive in Dilutions 1:60 and Above		
		Rheumatoid Arthritis	Osteo Arthritis	Normal	Rheumatoid Arthritis	Osteo Arthritis	Normal
50	AB <sub>13</sub> Alpha prime streptococcus*	54	100	84	36	0	10
33	AB <sub>13</sub> (second series)	51	90		30	0	
33	NY <sub>2</sub> Streptococcus haemolyticus†	60	89		30	0	
30	C <sub>17</sub> Streptococcus haemolyticus‡	60	89		24	0	
50	Adamo Strep haemo epidemicus	54	98	94	14	0	0
33	Throat M Strep haemo	69	96		6	0	
33	Stool S alpha streptococcus	75	81		6	0	
50	RB Streptococcus viridans§	64	62	60	16	6	16
33	RB (second series)	66	66		10	12	
50	Allen Strep vir septicemia	86	100	100	4	0	0
33	Clawson Strep vir	81	90		0	0	
33	Clawson Strep vir#	70	81		6	0	

\* Isolated according to R. L. Cecil and his associates from the blood stream of a patient with rheumatoid arthritis.

† Scarlet fever strain Doeberz.

‡ From the throat of a chorea patient.

§ Isolated by Cecil from the blood of a patient with acute rheumatic fever.

|| Isolated by B. J. Clawson from a patient with chronic arthritis.

# Isolated by B. J. Clawson from a patient with acute rheumatic fever.

these observations would lend support to the theory that streptococci are the etiologic agents in rheumatoid arthritis.

In the appended summary (table 6) of our own observations in this regard we selected three groups: (1) rheumatoid arthritis patients, (2) osteo-arthritis patients and (3) normal controls. The strains used as antigens were all streptococci, the great mass of investigation since the beginning of the century pointing toward the streptococcus as the important etiologic factor. The strains used include organisms isolated by various workers from rheumatoid arthritis and acute rheumatic fever, and from septicemia and other infected sources.

A diffuse growth of streptococci suitable for agglutination tests was obtained. Serum dilutions were made in 0.5 per cent sodium phosphate broth and 0.5 cc of antigen was added to each dilution making the total volume 1 cc in each tube. They were shaken incubated at 56 C for two hours and placed in the icebox over night.

If one considers that agglutinations in titers of 1:160 and above are significant, it is seen that rheumatoid arthritis serums agglutinate strains AB<sub>13</sub> in 36 per cent, NY<sub>2</sub> in 30 per cent, and C<sub>17</sub> in 24 per cent of the cases in this range of dilution. These are all hemolytic organisms. Using the organisms of cases from fatal septicemias both *Streptococcus hemolyticus* and *Streptococcus viridans* we obtained agglutinations only in very low titers. In osteo-arthritis serums there was practically no agglutination in any dilution of serum with the hemolytic streptococci. In the normal

subjects, with the hemolytic strains, AB<sub>13</sub> gave agglutinations at 1:160 and above only in 10 per cent of the cases.

We conclude, therefore, that a greater percentage of the serums from patients with rheumatoid arthritis showed agglutinins for streptococci in high titers than from patients with osteo-arthritis or from normal subjects. The streptococci most frequently agglutinated by rheumatoid arthritis serums were of the hemolytic type, *Streptococcus viridans* being less frequently agglutinated. The agglutinins found in the serums of rheumatoid arthritis patients were not strain specific, more than one strain of hemolytic streptococcus being agglutinated in comparable percentages. Hemolytic streptococci known to have caused death were not as frequently agglutinated as hemolytic strains of a less virulent nature.

Lancefield<sup>9</sup> found that hydrochloric acid extracts of *Streptococcus haemolyticus*, as prepared by a modification of the Porges method, contain group-specific as well as type-specific substances. In our precipitin studies extracts of NY<sub>2</sub>, a hemolytic streptococcus, were used as antigens. The hydrochloric acid extract contained principally the group-specific carbohydrate as well as the type-specific protein M. This hydrochloric acid extract was further processed by alcoholic precipitation with sodium acetate, to eliminate all but the type specific protein M. Both these extracts were used as antigens in parallel tests and gave nearly identical results.

Parallel agglutinin and precipitin reactions were then run on the same serums. Table 7 gives our results in summary. Here again only the rheumatoid arthritis serums contained agglutinins and precipitins in significant titers. It is seen that the results of agglutinin and precipitin tests are practically identical. The trend of this work tends to show that rheumatoid arthritis serums show a higher titer of agglutinins and precipitins with certain strains of streptococci than the serums from patients with other disease conditions and

TABLE 7—*Streptococcus Agglutinations and Precipitin Reactions in the Serum of Patients with Arthritis and of Normal Subjects*

		Rheumatoid Arthritis 25 Cases	Osteo Arthritis 21 Cases	Normal 22 Cases
Agglutinins positive	precipitin positive	42%	0	0
Agglutinins negative	precipitins negative	44%	90%	100%
Agglutinins positive	precipitins negative	2%	0	0
Agglutinins negative	precipitins positive	12%	10%	0

\* Suspension of *Streptococcus haemolyticus* NY<sub>2</sub> used as antigen.

† A serum was considered positive when agglutination occurred in dilutions of 1:160 and above.

‡ Hydrochloric acid extract of *Strep haemo* NY<sub>2</sub> used as antigen.

§ A serum was considered positive when a marked precipitation occurred in any dilution.

from normal subjects. This finding lends support to the theory that hemolytic streptococci are the etiologic agents in rheumatoid arthritis.

#### SUMMARY

Rheumatoid arthritis is now generally accepted as a disease of bacterial origin. Until recently this opinion has been based mainly on clinical impression. Many of the observations here summarized, however, add laboratory data to support this assumption. The ele-

Ulcer J 4 M A 99 1576 (Nov 5) 1932



operative procedure was carried out in our laboratory several hundred times in various investigations on peptic ulcer, and ulcer developed in about 95 per cent of the experiments

These results have been confirmed by Ivy and Fauley,<sup>22</sup> Morton,<sup>23</sup> Ravdin<sup>24</sup> and Weiss<sup>25</sup>

Weiss and Aron<sup>26</sup> in reporting their results expressed their opinion that the absence of duodenal juice affects especially the digestion of proteins. The proteins arrive in the jejunum as gross polypeptides after the albuminoid molecule has been liberated by the gastric juice but cannot be broken down any further to the assimilable components, the amino acids, because the jejunal secretion is deprived of the pancreatic trypsinogen, which is indispensable to this process. Histidine is thus lacking. They claim that it is one of the four amino acids which cannot be synthesized by the organism (cystine, lysine and tryptophan, they state, are the other three amino acids)

On the basis of these assumptions, Weiss and Aron repeated the experiments with daily subcutaneous injections of histidine-tryptophan mixture. While the two untreated controls died, the four dogs receiving such injections daily, although showing effects of denutrition, remained happy and sprightly. There was no blood in the feces. Autopsy on two of the four treated dogs after five weeks, on one after six weeks and on one after ten weeks revealed that the mucous membrane was normal. No ulcers were found.

Later Weiss and Aron<sup>27</sup> repeated the experiments after daily injections of lysine, tryptophan and histidine. Cystine, the fourth amino acid the organism is unable to synthesize from its own resources, was too difficult to inject. Injections of tryptophan or lysine did not change the evolution of ulcer. Injections of tryptophan and histidine combined or histidine alone did. The dogs became anemic and emaciated but remained in good spirits until they were killed, after a maximal survival permitted for the appearance of ulcerous lesions (five to six weeks<sup>27</sup>). Blood never appeared in the feces. Autopsies did not reveal ulcers.

#### CLINICAL REPORTS ON USE OF HISTIDINE PREPARATIONS

Weiss and Aron<sup>27</sup> as a result of the foregoing experiments concluded that under the influence of histidine-tryptophan the gastroduodenal mucosa resists the corrosive effects of the gastric juice. They then started treatment of ulcer patients with histidine-tryptophan, reporting favorable results in twelve patients. The therapy consisted in a daily injection of histidine-tryptophan mixture for three weeks. The doses varied between 1 and 5 cc for each injection, the solution consisting of 2 per cent histidine and 4 per cent tryptophan. During this time the patients were up and around, some even continuing their occupations and avocations. All previously used regimens, diets or medications were discontinued. The results in the twelve patients treated were as follows. The general condition improved and all symptoms disappeared. Pain subsided, usually after the fourth to the sixth

injection. The body weight increased at a rate of between 4 and 17 pounds (1.8 to 7.7 Kg) a week. The gastric hyperacidity diminished and finally became normal, and hemorrhages, if present, stopped. The direct and indirect roentgenologic signs, as niche or spasm, also disappeared.

The therapeutic action of tryptophan and histidine was studied separately by Aron<sup>28</sup>. Injections of histidine alone had a very favorable effect on the clinical evolution of the ulcer, which retrogressed rapidly, while at the same time pains disappeared.

Following the publications mentioned, numerous reports appeared in the foreign literature on the histidine hydrochloride (LaRostidin-Hoffman LaRoche) treatment of peptic ulcer. Blum,<sup>29</sup> Bogendorfer,<sup>30</sup> Spencker<sup>31</sup> and Hessel<sup>32</sup> report that "all" their patients became symptom free after several injections of histidine. These authors reported from six to thirty cases each. They did not restrict their patients' diet nor did they prescribe alkalis.

Deloyers<sup>33</sup> reports that in two of his ten cases the treatment was ineffective. Stolz and Weiss<sup>34</sup> stated that only three of their thirty-nine patients did not respond to treatment. Winter<sup>35</sup> reports unsuccessful results in only one of his twenty-three patients.

Weiss<sup>36</sup> in his latest report states that during the last year and a half ninety-one of his ulcer patients have been successfully treated with histidine. He further points out that during the period of treatment, and in the months following, his patients were on a full diet and received no other medication. The author finally points out that success with histidine should not be expected in ulcer cases with pyloric stenosis. He urges caution in hemorrhagic cases, advising that such medication should not be applied until bleeding has stopped.

The first report in the English language on histidine is from Ernst Bulmer<sup>37</sup> giving a preliminary report on a series of fifty-two unselected peptic ulcer cases (thirty-five gastric, seventeen duodenal). His results were as follows: "(a) 58% of symptomatic cures with disappearance of the abnormal x-ray findings, (b) 19% of symptomatic cures with persistence of some radiological abnormality, (c) 23% of failures. In a follow-up (time not stated), three patients relapsed, and one of the apparent failures improved. The patients having gastric ulcers seemed more amenable than those having duodenal ulcers, and those with a shorter history tended to react more favorably than those with a longer history.

Volini and McLaughlin,<sup>38</sup> the first American observers, report on twenty-one patients treated with histidine. Their preliminary report is concerned principally with a study of the fasting and the stimulated gastric secre-

28 Aron E. Recherches sur l'ulcère expérimental et sur le rôle des acides aminés dans son évolution. *Strasbourg med* 93: 731 (Oct 25) 1933.

29 Blum P. Orientation nouvelle de la pathogénie de l'ulcère expérimental gastrique et de la thérapeutique de l'ulcère humain. *Bull gen de therap* 184: 253-260 (June) 1933.

30 Bogendorfer L. Treatment of Gastric Ulcer with Histidine Preparation München. *med Wchnschr* 81: 1270 (Aug 17) 1934.

31 Spencker H. Histidin in der Behandlung des Magengeschwürs. *Deutsche med Wchnschr* 61: 713-714 (March 3) 1935.

32 Hessel G. Die Behandlung des Magens und Zwölffingerdarmgeschwürs mit Histidin. München. *med Wchnschr* 81: 1890-1891 (Dec 6) 1934.

33 Deloyers L. Que penser de l'histidine thérapeutique nouvelle des ulcères gastro-duodénaux? *Nouvelles médicales* 11: 5, 1934.

34 Stolz A and Weiss A G. Le traitement de l'ulcère gastro-duodénal par l'histidine: résultats de deux années d'expérience clinique. *Presse med* 43: 864 (May 29) 1935.

35 Winter H. Über eine neue Ulkustherapie mit Histidinmonohydrochlorid (LaRostidin Roche). *Med Klin* 31: 686-688 (May 24) 1935.

36 Weiss A G. Les ulcères expérimentaux. *Praxis* 9: No 21 1934.

37 Bulmer Ernst. Histidine Treatment of Peptic Ulcer with a Note on Fifty-Two Cases. *Lancet* 2: 1276-1278 (Dec 8) 1934.

38 Volini I and McLaughlin R F. The Histidine Monohydrochloride Therapy of Gastroduodenal Ulcer. Preliminary Report. *Am J Rec* 141: 364 1935.

22 Ivy A C and Fauley G B. The Chronicity of Ulcers in the Stomach and Upper Intestine. *Am J Surg* 11: 551-543 (March) 1930.

23 Morton C B. Observations on Peptic Ulcer (I, II and III). *Ann Surg* 85: 207-238 (Feb) 1927.

24 Ravdin I S. quoted by Dr Frank C Mann.

25 Weiss A G. Ulcères chroniques gastroduodénaux expérimentaux créés par la dérivation des sucs alcalins duodénaux. *Strasbourg med* 90: 549-552 (Sept 15) 1930.

26 Weiss A G and Aron E. Orientation nouvelle du problème de l'ulcère expérimental. Le rôle de certains acides aminés dans la pathogénie de l'ulcère et dans sa thérapeutique. *Bull et riem Soc nat de chir* 59: 898-901 (June) 1930.

27 Weiss A G and Aron E. Rôle des acides aminés dans l'évolution de l'ulcère expérimental. Influence de l'histidine. *Presse med* 41: 1880-1883 (Nov 22) 1933.

tions, reporting a decrease in amount and degree of free and total acids. Both, however, tend to increase toward the latter part of treatment and when it is discontinued. Though they state that the various clinical features and phases will be discussed in a later paper, they nevertheless add that, "in all" their patients, symptomatic relief was obtained very quickly. No other medication than histidine was allowed. All the patients smoked and were encouraged to continue doing so. The diet was an average American diet, tending to contain an excessive amount of roughage. Their patients were allowed coffee, tea, candy and even nuts.

Manginelli<sup>39</sup> treated fifty-two patients with gastroduodenal ulcers, gastritis and gastric neuroses with histidine. The injections were made intramuscularly, although the intravenous route was also found satisfactory. In gastroduodenal ulcers, he states that the rapid analgesic effect of histidine was striking.

Smith<sup>40</sup> reports on twelve patients treated with histidine. All his patients were roentgenologically proved to have ulcer of the lesser curvature. Ordinary diet was permitted without restriction. All his patients became symptom free. A striking feature, he states, was the rapidity with which the general nutrition of the patient improved. In every case there was a substantial gain in weight. In cases in which there had been gastric retention due to pylorospasm, the emptying time improved.

In summary, then, many foreign writers report favorable results with a high percentage of successful immediate responses, from using histidine in the treatment of peptic ulcer. Not a few report that "all" their ulcer patients became symptom free with this method of treatment. I have not been able to find in any publication an analysis of the remote results (long follow up) of histidine treated patients.

#### AUTHOR'S STUDIES

In order to evaluate clinically any new therapeutic measures for peptic ulcer, certain criteria must be considered:

1 Does the method under consideration produce a higher percentage of remissions in unselected groups of ulcer patients than does the diet-alkali regimen?

2 What percentage of patients not responding to the standard diet-alkali regimen become symptom free when the new method is instituted?

3 Does the new treatment permit patients to tolerate a maintenance diet sooner than the standard treatment?

4 Does the new method prolong the symptom-free interval or prevent recurrence?

5 Does the new method have any effect on gastric acidity?

6 What effect does the new method have on the ulcer deformity as seen by x-rays?

7 Does the new method of treatment produce reactions or untoward effects?

With these criteria in mind, I have observed a series of sixty-seven consecutive ulcer patients. Table 1 shows the location of ulcer and the duration of symptoms. It will be noted that 83.6 per cent of the total number of patients had had ulcer symptoms five years or longer. Of the patients treated with histidine, 90 per cent had had the ulcer syndrome five years or longer. All were roentgenologically proved ulcers. Fifty-six (83.6 per cent) of the patients each had several previous ambulatory standard treatments, thirty-nine (58.2 per cent) had had one or more previous

rigid bed-rest Sippy management, fifteen (22.4 per cent) had had appendectomies with the hope that the ulcer would later respond to medical management, thirteen (19.4 per cent) had had previous ulcer hemorrhages, six (9 per cent) had had gastro-enterostomy, three had had perforations, one had had his gastro-enterostomy undone, and another had had a gastro-enterostomy, later a resection of the stomach for

TABLE 1—Duration of Ulcer Symptoms and Location of Ulcer in Patients Treated

	Diet Alkali Patients	Histidine Patients	Total Patients
Duration of ulcer symptoms			
Less than 5 years	10	4	14
5 to 9 years	10	11	21
10 to 14 years	15	8	23
15 to 19 years	8	10	18
20 to 24 years	7	5	12
25 years and over	3	2	5
Totals	53	40	93
Site of ulcer			
Duodenal	42	28	70
Gastric	7	8	15
Gastrojejunal	4	4	8
Totals	53	40	93

recurrence, and finally a partial gastrectomy (Devine operation). All these, however, returned later with recurrence of ulcer symptoms.

#### METHOD OF TREATMENT

When these patients presented themselves for treatment, they were asked whether they could report for daily injections of histidine. If they could, twenty-four injections of histidine were given them in twenty-four consecutive days (twenty-three patients were thus treated). If they could not, they were started on the diet-alkali regimen (forty-six patients so treated). Those not responding to the diet-alkali treatment were then given daily injections of histidine (seventeen patients), those not responding to histidine were then started on the diet-alkali regimen (seven patients). There were thus fifty-three patients treated with diet-alkali and forty patients treated with histidine.

The diet used in the diet-alkali regimen was as follows: for patients at rest in bed, hourly feedings of milk and cream plus Sippy powders 1 and 2 with gradual increase by addition of eggs, cereals, and so on (diet 1, original Sippy diet). Ambulatory patients were started on milk, cream, soft boiled or poached eggs, strained cereals, creamed soups, custards, cereal puddings, toast and butter, divided into six feedings a day (diet 2). If, at the end of about ten days, these patients continued to be symptom free, pureed vegetables and fruits were added and the meals were divided into three a day with small feedings between meals (diet 3). Scraped beef, minced chicken and flaked whitefish were added to their diets (diet 4) from six to eight weeks after the beginning of dietetic treatment. Sippy powder 2 was always prescribed, but Sippy powder 1, liquid petrolatum, hot abdominal stupes, gastric lavages and antispasmodics were given only when indicated.

Patients starting on histidine injections were advised to continue with the same diet they had prior to the administration of histidine. Most of the patients treated with histidine were on a diet similar to diet 3 at the time they reported for treatment. After they had become symptom free they were told that they might increase their food as they pleased. No alkalis

<sup>39</sup> Manginelli, L. Histidine in Gastric Therapeutics. Arch. d. mal. digest. 25: 460 (May) 1935.

<sup>40</sup> Smith, D. The Histidine Treatment of Peptic Ulcer of the Lesser Curvature with a Note on Twelve Cases. Brit. M. J. 2: 154-159 (July 27) 1935.

were given them. These patients were not necessarily seen by me daily, as the injections were given by a nurse.

The forty patients treated with histidine were given a total of 869 injections: thirty-two patients each received twenty-four consecutive daily injections, four received from twelve to twenty-one, and four received from six to eleven injections.

Eleven of the fifty-three patients treated with the diet-alkali regimen were observed in a hospital, the remaining forty-two were treated ambulant. Of the forty patients treated with histidine, fourteen were observed in a hospital<sup>41</sup> and twenty-six were treated ambulant.

#### RESULTS OF TREATMENT

Results of treatment are discussed in accordance with the criteria that have been mentioned.

Table 2 shows the immediate results with histidine treatment. Table 3 shows the immediate results with the diet-alkali regimen. It will be noted that the percentage of remissions and percentage of moderate improvement are practically the same for the two treated groups. For the histidine series, 55 per cent of remissions and 20 per cent of moderate improvement (a total of 75 per cent of favorable responses), for the diet-alkali series, 51 per cent of remissions and 20.7 per cent of moderate improvement (a total of 71.7 per cent of favorable responses).

Claim is made that twenty-four consecutive daily injections of histidine are essential to produce maximum clinical improvement. An analysis of the twenty-two patients who developed remissions on histidine treatment shows that five patients became symptom free at the end of the first injection, six at the end of the second, four at the end of the third, three at the end of the fourth, two at the end of the fifth, one at the end of the eighth, and only one after twenty-one injections. The sudden disappearance of all discomfort in eleven of the patients after one or two injections was very striking and impressive. However, fourteen

TABLE 2—Immediate Results with Histidine Treatment

	Unselected Histidine Patients		Histidine After Diet Alkali Regimen Did Not Result in Remission		Total Histidine Patients	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Number of patients	23		17		40	
Worse	2	8.7	1	5.9	3	7.5
Unimproved	3	13.0	4	23.5	7	17.5
Moderate improvement	5	21.7	3	17.6	8	20.0
Remission	13	56.5	9	52.9	22	55.0
Moderate improvement + remission	18	78.2	12	70.6	30	75.0

patients each received twenty-four consecutive daily injections and were either only moderately improved or received no benefit from the treatments. Moreover, ten patients who returned within three months after treatment with recurrences of ulcer symptoms (see item 4) were among those who received twenty-four consecutive daily injections. One of the two patients who returned with recurrence of symptoms within four to five months after treatment received only ten injections.

<sup>41</sup> Ten patients were observed in Receiving Hospital, Detroit and four patients in William J. Seymour Hospital, Elmhurst, N. Y. I did not personally observe two of the Receiving Hospital patients and the four treated in the William J. Seymour Hospital. They were however observed by the resident physicians of the two institutions. Accurate records are available.

It is therefore apparent that twenty-four consecutive daily injections are not essential either to produce a remission or to prolong the symptom-free period. If five or six (at the most eight) consecutive daily histidine injections do not cause complete disappearance of all ulcer discomforts, the hope of producing a remission or prolonging a symptom-free interval by further histidine treatment is negligible, based on this small series of patients.

TABLE 3—Immediate Results with Diet-Alkali Treatment

	Unselected Diet Alkali Patients		Diet Alkali After Histidine Injections Did Not Result in Remission		Total Diet Alkali Patients	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Number of patients	46		7		53	
Worse	0	0.0	0	0.0	0	0.0
Unimproved	13	28.3	2	28.6	15	28.3
Moderate improvement	9	19.5	2	28.6	11	20.7
Remission	24	52.2	3	42.9	27	51.0
Moderate improvement + remission	33	71.7	5	71.4	38	71.7

The condition of three patients was aggravated during histidine treatments. A brief history follows for each of the three patients.

CASE 1—W. S., a man, aged 65, had an ulcer history extending over twenty-two years. Gastro-enterostomy and appendectomy were performed in 1915. Bed-rest treatment was given in 1920. Several ambulatory modified Sippy treatments were given from 1930 to 1935. The patient was admitted to the hospital March 25, 1935, when rigid Sippy management was started, moderate improvement occurred but continued distress. Eleven histidine injections were then given, but after the eighth injection the patient began experiencing severe epigastric pain suggestive of penetration. Hourly milk and cream with alkalis were then resumed, histidine was continued. The symptoms did not subside. Operation showed a jejunal ulcer about 1 cm. in diameter, of the perforating type, on the mesenteric side of the jejunum just below the gastro-enterostomy. There were also adhesions. A partial resection of the jejunum to include the ulcer was done. Microscopic study did not show a malignant condition. The patient was symptom free for six weeks following the operation, when he returned with recurrence of symptoms.

CASE 2—L. R., a man, aged 60, had an ulcer history of six years' duration, during which time he had several ambulatory ulcer managements. He was admitted to the hospital May 10, 1934, with ulcer symptoms. Rigid ulcer management with hourly milk and cream and alkalis was started on admission and continued with only moderate improvement of symptoms. Roentgen examination showed a penetrating deformity in the lesser curvature of the stomach with 50 per cent retention in twenty-four hours. Twenty-four daily consecutive histidine injections were given, with no change in symptoms. A second roentgen examination after histidine showed a perforating ulcer four times the size seen after the first roentgen examination. The patient died shortly afterward. Autopsy showed his liver to be adherent to the stomach along the lesser curvature. A large crater-like ulcer with rounded indurated edges 8 cm. in diameter was found along the lesser curvature of the stomach, and a small perforation was found in the floor of the ulcer into the lesser peritoneal cavity. Microscopic study did not show malignancy.

CASE 3—M. M., a woman, aged 62, had an ulcer history of ten years' duration, during which time she had several ambulatory managements resulting in remissions but followed by recurrences. She was admitted into the hospital with an ulcer hemorrhage (hematemesis and melena). Histidine was started the day of admission and continued until twenty-five daily injections were given. During the first two days the patient was given ice chips and morphine but no food by mouth, a direct transfusion of 400 cc. of blood was given her on the second hospital day. On the third day hourly feedings of milk

and cream with alkalis were started. The patient responded nicely to this management, with disappearance of occult blood in the stools. On the ninth day, with the hope that, because of the histidine, she could tolerate a maintenance diet, her diet was changed to three meals a day and increased to the hospital "soft low residue diet." On the next day tarry stools developed (4 plus occult blood). The usual Sippy regimen was instituted, with successful results.

2 Table 2 shows that seventeen patients were treated with histidine after the diet-alkali regimen had resulted in either moderate or no response. It will be noted that nine of the seventeen patients so treated became symptom free and an additional three moderately improved, a total of 70.6 per cent of favorable responses. Though one cannot draw definite conclusions from the results obtained in these seventeen patients, nevertheless it is important to note that by histidine approximately 50 per cent of those cases showing no remission with diet-alkali treatment have been made symptom free and an additional 20 per cent moderately improved. However, the same holds true for the diet-alkali regimen when it is instituted after

TABLE 4—Follow-Up Results After Treatment

	Histidine Series	Diet-Alkali Series
Total followed	20	29
Remission but recurrence in		
Less than one month	6	4
1 to 2 months	3	2
2 to 3 months	2	1
3 to 4 months	0	1
4 to 5 months	2	1
5 to 6 months	2	0
Total remissions within 6 months	17-85.0%	9-31.0%
Remission but recurrence in		
6 to 12 months	0	3-10.3%
Remission still symptom free		
6 to 12 months	2	0
1 year or over	0	5
Did since remission was initiated	1*	0
Total followed	20	29

\* This patient became symptom free after the first injection of histidine. On the day of the fourteenth injection he developed a mild sore throat. On the day of the twenty-first injection he developed weakness and a mild cough. On the day of the twenty-fourth injection he was hospitalized. There was a questionable pneumonic process in the right lower lobe with an atypical blood picture. One week later a tender mass was noted in the soft tissue over the region of the ninth rib in the anterior axillary line. The hematologic and external puncture diagnosis was acute myelogenous leukemia which was confirmed two months later at postmortem examination. During the two months of his life following the histidine injections he was symptom free so far as the ulcer was concerned. There is no evidence that any coagulation exists between injections of histidine and the development of myelogenous leukemia.

histidine results in no remission three of the six patients so treated became symptom free and two moderately improved. This is important.

3 It is claimed by many authors that patients treated with histidine are able to tolerate a maintenance diet even during the early stage of treatment. That this is not borne out by my series of patients is evident from the fact that eight of the forty histidine-treated patients were only moderately improved seven were not improved and in three the condition was aggravated by treatment—a total of eighteen (45 per cent) in whom the diet could and should not be increased. Only twenty-two (55 per cent) of the patients became symptom free. Twenty of the twenty-two rapidly increased their diet so that at the end of four weeks they were on a full diet with three meals a day. The immediate response to histidine in these twenty patients was excellent.

4 A follow up of twenty patients who developed remission in symptoms after histidine treatment (table 4) showed that recurrences of symptoms appeared in

85 per cent of the patients within six months after histidine injections six within one month, five within one to two months, two within two to three months, two within four to five months, and two within five to six months after treatment. Similar follow up of twenty-nine patients on diet-alkali management showed only 31 per cent with recurrence of symptoms within the same period of time four within one month, two within one to two months, one within three to four months and one within four to five months after onset of dietetic treatment. This speaks unfavorably for the lasting benefit to be obtained from the use of histidine in ulcer therapy, as compared with the diet-alkali regimen.

It is possible that with the histidine treatment the short duration of remissions and the high percentage of recurrence resulted because of rapid increase in diet. As stated before twenty of the twenty-two patients who showed remission with histidine were on practically full diets four weeks after beginning treatment. The patients on diet-alkali management were schooled in the essential dietetics of their treatment, those treated with histidine were not so educated, had a more liberal diet and suffered early recurrences.

Patients not responding to histidine were changed to the diet-alkali regimen and vice versa (tables 2 and 3 show the immediate results). Four patients were not improved after both diet-alkali and histidine treatment. They were then again placed on diet-alkali management. One became symptom free. Two were moderately improved. One of the patients in the diet-alkali series did not show improvement until gastric lavage was instituted. Another improved when milk was withdrawn from his diet when skin tests proved him allergic to milk. By changing from one method of treatment to another and trying all means at hand to "tire the ulcer out" I was able to produce remissions in forty-nine (73.5 per cent) patients and moderate improvement in nine (13.4 per cent) patients, a total of fifty-eight, or 86.5 per cent, favorable responses. The nine patients not responding to medical management (diet-alkali regimen, histidine or both) had the following complications: two, mild hyperthyroidism, two, myocarditis, one, arteriosclerosis, one, perforation (death), one, high grade retention, one, penetrating jejunal ulcer, and one, chronic appendicitis and chronic cholecystitis. The latter three were subsequently operated on.

5 Effect of Histidine Treatment on Gastric Acidity. In seventeen of the forty patients, gastric acidity determinations were made before and after the twenty-four histidine treatments. Five patients showed no change in the acid curve, six showed a slight increase and six a slight decrease in degree of free and total acids. Of the six patients who showed an increase in the degree of acidity, five were symptom free and one was moderately improved, of the six patients with a decrease in acids, five were symptom free and one was moderately improved, and of the five showing no change in the acid, two were symptom free and three moderately improved.

It is therefore evident that clinical improvement does not depend on the slight alteration in acidity during treatment.

6 Effect on Ulcer as Shown by Roentgen Examination or Operation. I have obtained either roentgen or operative check of the healing or nonhealing of the ulcer in twenty-four of the forty histidine-treated patients. Four patients with gastric ulcer and two with gastroduodenal ulcer showed the same lesions to be pres-

ent after histidine treatment. One patient showed a lesser curvature ulcer four times the size of the original ulcer, he subsequently died and an autopsy showed a perforated ulcer with peritonitis. Still another patient with gastric ulcer was operated on after histidine treatment and an ulcer was found at the pylorus. Of the sixteen patients with duodenal ulcer, the roentgenologist reported "improvement" or "evidence of healing" in eight, clinically, four of these patients were symptom free, three were moderately improved, and one was unimproved at the time of the second roentgen examination. In the remaining eight the roentgenologist reported no change in the defect; all eight were symptom free. Two patients with duodenal ulcers were subsequently operated on and ulcers were found at operation.

Of the twenty-four patients checked by either roentgen examination or operation after histidine treatment, none of the patients showed disappearance of their ulcers. Of course, persistence of deformity in the duodenum as shown by roentgen examination is not indicative of activity or nonhealing of the ulcer.

Bulmer<sup>3</sup> reports "58 per cent of symptomatic cures with disappearance of the abnormal x-ray findings." However, it should be noted that thirty-five of the patients in his series of fifty-two had gastric ulcers. Of the thirty who became symptom free with normal roentgenograms, twenty-two (73.3 per cent) were in the gastric ulcer group. It is well known that gastric ulcers frequently disappear on diet-alkali management.

**7 Reactions.** Sixteen (40 per cent) of the forty histidine-treated patients developed mild reactions. These occurred only in the patients treated ambulatory. No reactions were observed in the hospital patients. After the second, third, fourth, or fifth injections these patients complained of weakness (particularly in the knees), a tired feeling, aches and pains in the muscles of the arms and legs, and a feeling of being "all in" and "run down," as if they had the 'grip'. The patients had no chills, fever, vomiting or abdominal pain. They were not examined for leukocytosis. Two of the patients were so 'run down' that each had to rest in bed for twenty-four hours. After injections one patient experienced severe temporal headaches with pain in the eyeballs associated with lacrimation. His symptoms were of three days' duration and so severe that he could not sleep at night.

Of the sixteen who experienced these reactions, eleven became symptom free, four were moderately improved and one was unimproved.

Five of the ambulatory and six of the patients in the hospital group became symptom free without having the reactions.

Obtaining a reaction therefore does not mean that the patient will become symptom free, nor is it necessary for success in treatment.

#### ULCER PATIENTS TREATED WITH INJECTIONS OF DISTILLED WATER

To determine whether the remissions obtained by histidine injections were a direct result of adding this amino acid—which the ulcer patient lacks—as Weiss and Aron premise, I am at present treating ulcer patients with daily injections of 5 cc of distilled water as controls similar to the foregoing series. Of twenty patients so far treated the results so far compare favorably with those obtained after histidine injection. Twelve, or 60 per cent, became symptom free (compared with 55 per cent of the forty histidine patients); five became symptom free after the first injection of

distilled water, three after the second, two after the third, one after the fourth, and one after the fifth injection of distilled water. However, the number of patients is too small and the follow up too short for definite conclusions. The results with injections of distilled water will be given in a subsequent communication.

#### INDICATIONS FOR THE USE OF HISTIDINE TREATMENT

In my experience, I do not know of any one method of treatment that produces remission in "all" ulcer patients, notwithstanding several reports in the literature. In evaluating the high percentage of favorable results with histidine or the other "newer" methods, one must take into consideration the natural life cycle of peptic ulcer. Many ulcer patients develop spontaneous remissions. Not infrequently patients become symptom free immediately after intake of the barium sulfate mixture for x-ray study. Two patients scheduled for histidine treatment became symptom free immediately after barium intake and before histidine was given. Moreover, good results are obtained in many patients under the standard diet-alkali-antispasmodic regimen. Unless these facts are taken into consideration, one is prone to become "overenthused" by newer procedures.

Results obtained in forty patients (table 2) do not warrant routine injections of histidine in all ulcer patients. The expense involved, the daily visits to office or clinic, the twenty-four consecutive intramuscular injections, the mild reactions experienced by an appreciable number (40 per cent) of patients, the high percentage of recurrences (85 per cent) within six months after treatment, and, what is more important, the fact that approximately the same percentage of patients respond favorably to the diet-alkali regimen without histidine injection—these speak against the routine use of histidine in ulcer therapy.

Histidine therefore should not replace the usual diet-alkali management of ulcer. However, it may be very valuable as "extra artillery," when such is deemed necessary. Ulcer patients should first be placed on an ulcer diet with frequent feedings and alkalis. In addition, local heat, antispasmodics, sedatives and aspiration should be prescribed when indicated. Mental rest should be repeatedly stressed. Attention should also be given to coexisting disorders, as focal infection, constipation, hyperthyroidism and emotional conflicts. If patients prove refractory on these regimens, histidine injections may be valuable. About 50 per cent of our patients not responding to the diet-alkali management become symptom free and an additional 20 per cent moderately improved. As an adjuvant to our therapeutic armamentarium, therefore, it is of value.

#### MILCHMANISM AND RATIONALE OF THE HISTIDINE TREATMENT

Weiss and Aron<sup>26</sup> assumed that their dogs which had been operated on developed peptic ulcers because of a deficiency or absence of the amino acid histidine. They state that the operation deprived the jejunal secretion of pancreatic trypsinogen, thereby preventing the breaking down of the gross polypeptides into their assimilable components the amino acids. They were unable to produce ulcers when histidine was furnished by injection. These facts caused them to formulate the histidine deficiency theory for ulcer production in man and form the basis for the present histidine ulcer therapy.



This experimental evidence, however, does not conclusively prove that peptic ulcer, either in experimental dogs or in man, is a result of histidine deficiency. As a matter of fact, numerous experiments by various workers definitely point in a different direction.

Mann and Williamson<sup>20</sup> transplanted the common bile duct and the pancreatic duct into the terminal ileum, leaving the duodenum in its normal position. Neither trypsinogen nor trypsin could reach the jejunum. Amino acids or histidine could not be formed. Only 50 per cent of the animals developed ulcers, 50 per cent did not.

Hoerner<sup>42</sup> reports that evulsion of the pancreatic ducts, preventing the pancreatic secretion from reaching the intestinal tract, is rarely followed by ulcers. The pancreatic proteolytic pro-enzyme in these animals could not reach the intestine. Proteins thus could not be broken down into the amino acids. According to Weiss and Aron, there should be a deficiency or lack of histidine. Yet ulcers rarely developed.

Mann and Williamson<sup>20</sup> eliminated the entire normal mechanism for receiving the acid-gastric contents by deviating the duodenum together with all the secretions poured into it. In this series of experiments, as well as in Weiss and Aron's experiments (on which they base their histidine deficiency theory of ulcer) the jejunum was thus deprived not only of trypsinogen but also of the pancreatic amylolytic enzyme (amylase), the pancreatic lipolytic enzyme (lipase) of bile (bile salts, acids and pigments) and of the duodenum with the protective mechanism of the duodenal mucosa and secretion. By depriving the jejunum of all these there is a disturbance not only in protein metabolism but in the carbohydrate and fat metabolism as well. There is in addition a disturbance in the acid-alkali relationship in the jejunum compared with the normal jejunum, and a change in the mechanical factors as described by Mann and Williamson<sup>20</sup> and by Morton<sup>43</sup>. In short, there is a total disturbance of all the biochemical processes of digestion. In this group 95 per cent of the animals developed chronic callous ulcers.

Morton<sup>43</sup> repeated the experiments of Mann and Williamson. In addition, he reports that, on performing a gastro-enterostomy after the ulcers formed, "in every case the original jejunal ulcer showed unmistakable evidence of healing" while the duodenum and both bile and pancreatic ducts still drained into the ileum. These ulcers healed in spite of the fact that there was a so-called histidine deficiency. However, coincident with the healing of the original ulcers, new ulcers formed in the efferent loops of the gastro-enteric anastomosis. "The acid alkali imbalance following surgical duodenal drainage," he states, "and the force with which the contents emptying from the stomach impinged directly on a relatively circumscribed area of the intestinal wall, are suggested as having an important bearing on the formation of ulcers."

Mann and Williamson,<sup>20</sup> Morton,<sup>43</sup> Mann and Bollman,<sup>44</sup> McCann,<sup>45</sup> Ivy and Fauley,<sup>22</sup> Matthews and Dragstedt<sup>46</sup> and more recently Harper<sup>47</sup> have referred

to three factors as significant in the development of peptic ulcer in surgical duodenal drainage: the chemical factor, the mechanical factor and the susceptibility of the mucosa. All these factors seemed to be of significance in the production of the experimental ulcers described.

Ivy<sup>48</sup> writes that "Weiss and Aron did not 'run' their Exalto-Mann-Williamson dogs long enough. The Exalto-Mann-Williamson operation, because of the digestive disturbance it creates, has a mortality per se, i. e., such a dog may die at from three to ten weeks without ulcer. In the therapeutic studies we have been conducting during the past four years on Exalto-Mann-Williamson dogs, we have observed this frequently. In order to interpret the results of our therapy, we operated on forty-two dogs for control. Of the forty-two untreated control dogs all died from jejunal ulcer in from fourteen to 120 days postoperatively, the average being seventy-eight days. When the presence of ulcer was diagnosed by blood in stools or gastric analysis, it was found that only 50 per cent of the dogs developed ulcer prior to seven weeks (forty-nine days), all had not developed ulcer until fourteen weeks postoperatively. So I cannot place much weight on the results reported by Weiss and Aron." Weiss and Aron<sup>26</sup> examined two of their four dogs post mortem five weeks after histidine-tryptophan treatment, one after six weeks and one after ten weeks.

It is difficult, therefore, to see why the disturbance in the protein metabolism and the deficiency in histidine (if there is such a deficiency) is blamed solely for the resultant ulcer. Enzymes, bile, and the disturbance in carbohydrate and fat metabolism, as well as the chemical and mechanical factors and susceptibility of the mucosa, are hardly considered by Weiss and Aron in the process of ulcer formation. The very basis of Weiss and Aron's histidine-deficiency theory is questioned by Ivy<sup>48</sup> when he states that "Weiss and Aron did not 'run' their Exalto-Mann-Williamson dogs long enough" after histidine-tryptophan injections.

It appears that there is no sufficient scientific evidence that a deficiency of histidine is the cause of peptic ulcer. The experiments performed by Mann and Williamson,<sup>20</sup> Hoerner,<sup>42</sup> Morton,<sup>43</sup> Mann and Bollman,<sup>44</sup> McCann,<sup>45</sup> Ivy and Fauley,<sup>22</sup> Matthews and Dragstedt<sup>46</sup> and Harper<sup>47</sup> do not point in this direction. Confirmatory work by other investigators of Weiss and Aron's experiments have not been reported. Clinical end results after histidine injections in my series of ulcer patients do not give a sufficiently high percentage of remissions to point in favor of the histidine deficiency theory.

In my opinion, histidine represents one of a number of substances<sup>49</sup> that may be useful as "extra artillery" if patients prove refractory to the standard diet-alkali ulcer regimen. Remissions, when they result after these injections, may be explained by one or more of the following:

- 1 The intermittent nature of the disease. Ulcers are characterized by symptom-free intervals and relapses. Persistence of treatment, therefore, is important. A symptom-free interval may follow.

- 2 The psychic effects added confidence in "something new," instead of "the same old diet and powders" so well known to ulcer patients, also greater encouragement due to more frequent visits to physicians, as well as more careful and longer observation.

<sup>42</sup> Hoerner, M. T. The Effect of Exclusion of the Pancreatic Secretion by Evulsion of the Pancreatic Ducts on the Reaction of the Duodenal Content. *Am. J. Digest. Dis. & Nutrition* 2: 295-297 (July) 1935.

<sup>43</sup> Morton, C. B. Observations on Peptic Ulcer. *V. Ann. Surg.* 87: 401-422 (March) 1928.

<sup>44</sup> Mann, F. C. and Bollman, J. L. A Symposium Concerned with the Duodenal Factors in the Neutralization of Acid Chyme. *Am. J. Digest. Dis. & Nutrition* 2: 284-285 (July) 1935.

<sup>45</sup> McCann, J. C. Experimental Peptic Ulcer. *Arch. Surg.* 19: 600 (Oct.) 1929.

<sup>46</sup> Matthews, W. B. and Dragstedt, L. R. The Etiology of Gastric and Duodenal Ulcer. *Surg., Gynec. & Obst.* 55: 265 (Sept.) 1932.

<sup>47</sup> Harper, F. R. Development and Treatment of Peptic Ulcer. *Arch. Surg.* 30: 94-104 (March) 1935.

<sup>48</sup> Ivy, A. C. Personal communication to the author. Sept. 17, 1935.

<sup>49</sup> Footnotes 1-12.

3 A nonspecific protein reaction It is thought that local cellular injury leads to the absorption of protein, affecting the chronically inflamed locus (the ulcer) by stimulating leukocytosis, mobilization of immune bodies, dilatation of capillary vessels, and so on

4 A nonspecific action on the sympathetic nervous system which in some way influences the nervous control of the ulcer area, inducing hypomobility and hypoperistalsis

#### SUMMARY

1 Of sixty-seven patients with peptic ulcer, fifty-three were treated with a diet-alkali regimen and forty patients with histidine

(a) Of the patients treated with diet-alkali, 51 per cent became symptom free and 207 per cent were moderately improved (a total of 717 per cent of favorable responses) Of the patients treated with histidine, 55 per cent became symptom free and 20 per cent were moderately improved (a total of 75 per cent of favorable responses)

(b) Of seventeen patients treated with histidine after the diet-alkali management failed to produce remissions, 52.9 per cent became symptom free and 17.6 per cent moderately improved (a total of 70.6 per cent of favorable responses)

(c) Of nine patients treated with the diet-alkali after histidine failed to produce remissions, 42.8 per cent became symptom free and 28.6 per cent moderately improved (a total of 71.4 per cent favorable responses)

(d) By changing from one treatment to another and trying all means at hand, to "tire out the ulcer," 73.5 per cent became symptom free and 13.4 per cent moderately improved (a total of 86.5 per cent of favorable responses) Of the nine patients not responding to medical management, four had ulcer complications necessitating surgery and five had medical complications such as myocarditis, hyperthyroidism or arteriosclerosis

2 A follow up of patients who developed remissions showed that 85 per cent of the patients treated with histidine developed recurrences of ulcer symptoms within six months after treatment Of the patients who developed remissions after the diet-alkali regimen, only 31 per cent returned with ulcer symptoms within six months (table 4)

3 Twenty-four consecutive daily injections of histidine are not essential to produce a remission or prolong a symptom free period If five or six (at the most, eight) consecutive daily histidine injections do not cause complete disappearance of all ulcer discomforts, the hope of producing a remission or of prolonging a symptom-free interval by further histidine injections is negligible, based on this small series of patients

4 About one third of seventeen patients showed a slight increase in the acid curve, one third showed a slight decrease and the remaining third showed no change in degree of acidity after histidine injections Clinical improvement or failure to improve did not depend on the resultant gastric acidity curve

5 Of the twenty-four patients checked by either roentgen examination or operation after histidine treatment, not one showed disappearance of the ulcer deformity

6 Sixteen (40 per cent) of the forty histidine-treated patients developed mild reactions Obtaining a reaction does not mean that the patient will become symptom free, nor is it necessary for success in treatment

#### CONCLUSIONS

Results obtained in forty patients do not warrant routine injections of histidine in all ulcer patients The expense involved, the daily visits to office or clinic, the twenty-four consecutive intramuscular injections, the mild reactions experienced by an appreciable number of patients, the high percentage of recurrences within six months after treatment, and what is more important, the fact that approximately the same percentage of patients respond favorably to the diet-alkali regimen without histidine injections—these speak against the routine use of histidine in ulcer therapy

Histidine produced remission of ulcer symptoms in 55 per cent of the patients treated When its administration produced remission of symptoms, it did not prolong the symptom-free interval nor did it prevent recurrences, 85 per cent of the patients who developed remissions have returned with ulcer symptoms within six months after treatment

However, histidine may be used as "extra artillery" in patients not responding to the diet-alkali-antispasmodic management About 50 per cent of the latter patients may thereby become symptom free and an additional 20 per cent moderately improved

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## HEMOGLOBIN AND RED CELL CONTENT OF THE BLOOD OF NORMAL WOMEN

### DURING SUCCESSIVE MENSTRUAL CYCLES

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CHICAGO

This is a report of one phase of an iron metabolism study of four normal college women carried out over several successive menstrual cycles Since the larger proportion of iron exists in the body in the red blood cells, this study of necessity included determinations of hemoglobin and red cell values of the blood of the subjects In view of the conflicting nature of the data available in the literature, daily determinations of hemoglobin and red cell content were made during the greater part of the study in the hope of making some contribution to this field of investigation The results of these daily determinations are herewith presented and considered in relation to the different phases of the menstrual cycle

#### LITERATURE

The literature on this subject is not extensive and the observations reported are confusing and contradictory The one point of agreement appears to be that variations in both hemoglobin and red cell values exist The relation of these variations to the different phases of the menstrual cycle, however, is not consistently demonstrated In general, the variations in the erythrocytes are more evident than in the hemoglobin, but usually the two follow the same course Some workers<sup>1</sup> have found a premenstrual rise in the erythrocytes

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The authors received the technical assistance of Mr. Gerald Brown who took the blood samples and made the cell counts

Since space does not permit the inclusion in this article of all daily figures, copies of the same will be lent to any one requesting them

1 Blumenthal Beitr z Geburt u Gynäk 61: 614, 1908  
Dehre J Ztschr f d ges exper Med 75: 240, 1924  
Holler C Melcher H and Reiter A Ztschr f klin Med 100: 564, 1924  
Kratzenhoff Dissertation, Paris, 1909, quoted by Gumprecht  
Poldi A Wien Klin Wchnschr 7: 238, 1910  
Reinert Blutunter- suchung und Zählung 1891  
Stamen Zentralbl f Gynäk 1893, quoted by Gumprecht

followed by decrease with the onset of the flow, others<sup>2</sup> have reported a premenstrual decrease and still others no change coincident with menstruation.

Two larger and more complete studies are in the last group. Gumpnich<sup>3</sup> found that variations occurring in both the hemoglobin and the red cell content during menstruation were not definite and concluded that it is impossible to consider that there is a definite, regular influence of the menstruation process on the blood picture. The most valuable and recent data are presented by Reich and Green.<sup>4</sup> In an effort to obtain a better idea of the erythrocyte changes in the blood and bone

determinations been made during complete and successive menstrual cycles to establish what variations are normal and therefore what variations may be expected in any phase of the cycle. The data collected in the present study on the hemoglobin and red cell content of the blood of normal women during a long-time iron metabolism study furnish a more complete record of the variations of these blood constituents than has heretofore been reported.

#### EXPERIMENTAL

Four normal college women, three of them 21 years old and one 27 years old, served as subjects. The technic of the balance study involved the weighing and analysis of all the food eaten by the subjects and the collection and analysis of all the excreta, including the menstruum, over a continuous period of three months for two subjects and of four months for the other two subjects. The diet was planned to meet all the requirements of nutrition standards for adequacy and was constant in kind and amount throughout the experimental period. Analyses now in progress indicate that the average daily intake of iron by each subject ranged from 10 to 15 mg. During her fourth and fifth menstrual cycles one subject was given daily a supplement of 5 mg. of iron in the form of ferric ammonium citrate. This was discontinued during the sixth and last cycle of the study.

Cutaneous blood samples were taken immediately before lunch each day. This time was chosen because the activity of the subjects varied less from morning to morning than at any other time. Two erythrocyte counts were made on each blood sample and accepted only if they checked within 20. This means a difference in the final values of 0.2 million cells per cubic millimeter of blood. The same technician drew the samples and counted the cells during the entire study. Each day another technician prepared and counted a second slide from one of the blood pipets. In this way the count on one blood sample was rechecked each day and each of the four blood counts was rechecked every fourth day. Hemoglobin was determined by the method of Newcomer.<sup>5</sup> The hemoglobinometer was calibrated by the oxygen capacity method of Van Slyke.<sup>6</sup>

#### RESULTS

The results of daily determinations of hemoglobin and red cell content of the blood of each subject, the averages for each five-day period, and the averages for each menstrual cycle are shown graphically in the accompanying charts.

Observation of these data shows the occurrence of day to day variations in both hemoglobin and red cell values. These variations lie mostly within the limits of experimental error, but there are occasional sharp rises and drops. A tabulation of these variations shows that of all the day to day variations calculated for hemoglobin 57 per cent is no greater than 0.5 Gm. and 80 per cent is no greater than 1 Gm. For red cell counts, 90 per cent of the variations do not exceed 0.3 million. Moreover, the variability for the entire period is small. This is indicated by low standard deviations and coefficients of variation for both hemoglobin and red blood cells. It is significant, however, that even under carefully controlled conditions of diet and activity and with the most meticulous care in technic the average standard deviation for hemoglobin is

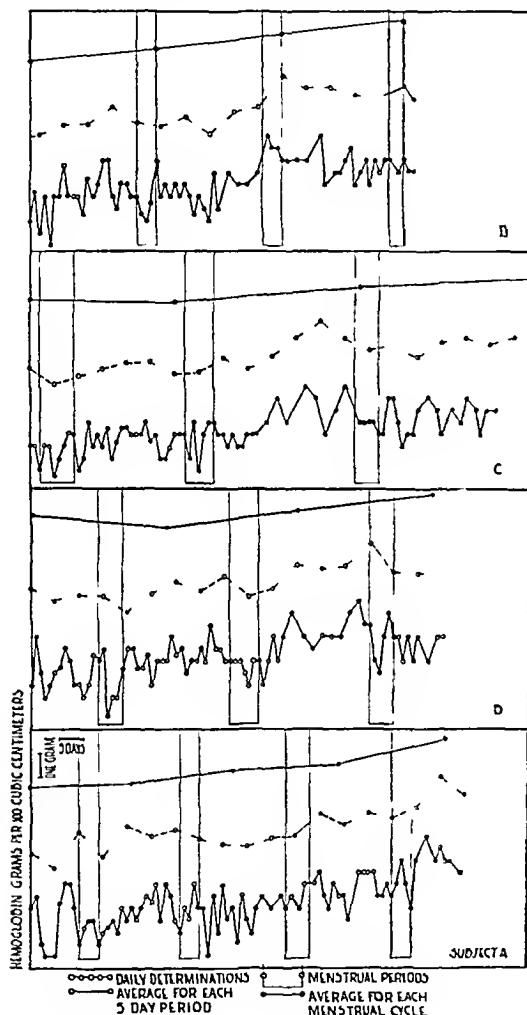


Chart 1—Variation in hemoglobin values of normal women

marrow coincident with the various phases of the menstrual cycle they determined the hemoglobin, the red cells and the percentage of reticulocytes in the blood of six normal women twice a week for three months. They conclude that there are no definite variations in the hemoglobin and the red cells associated with menstruation. They offer as evidence of the validity of their conclusion the fact that there was no definite post-menstrual reticulocyte peak. This indicates that the bone marrow is not called on to increase its regenerative activity following menstruation.

The lack of agreement among workers is perhaps due largely to the fact that at no time have daily

<sup>2</sup> Merletti, Ann. di ostet. e ginec. 1900, p. 67. Reinl. Volkmann's Sammlung klin. Vorträge 1884, quoted by Gumpnich.  
<sup>3</sup> Gumpnich, G. Beitr. z. Geburtsh. u. Gynäk. 19, 435, 1914.  
<sup>4</sup> Reich, Carl and Green, Dorothy. Red Cell Regeneration During the Menstrual Cycle. Arch. Int. Med. 49, 34 (March) 1932.

<sup>5</sup> Newcomer, H. S. J. Biol. Chem. 37, 465 (March) 1919.  
<sup>6</sup> Van Slyke, D. D. and Neill, J. M. J. Biol. Chem. 61, 523 (Sept) 1924.

0.9 Gm. Though not excessive, this deviation is large enough to place decided limitations on the significance of any single determination of hemoglobin as often made in clinical examinations by methods far less accurate than the colorimetric one used in this study. The standard deviation of the red cell values is 0.31 million, which is scarcely above the experimental error of the technique and less than the error accepted in general clinical determinations.

Since it was thought that the amount of rest might influence daily hemoglobin and red cell values, sleep records were kept for each subject. When either the absolute values or the daily variations in the hemoglobin and red cell concentrations were compared with the number of hours of sleep there was no correlation. Reasoning that perhaps there was a physiologic lag before the effects of loss of sleep were evidenced, the hemoglobin and red cell values were compared with sleep records of two nights preceding the time of each

Comparison of the Average Daily Hemoglobin and Red Cell Content of the Blood of Normal Women During Menstrual Cycles and Menstrual Periods

Subject	Cycle	Average Daily			Period	Average Daily		
		Length in Days	Hemo- globin Gm/100 Ce	Red Blood Cells Million per Cu Mm		Length in Days	Hemo- globin Gm/100 Ce	Red Blood Cells Million per Cu Mm
A	1	22	12.9	4.7*	1	5	12.74	4.70
	2	21	13.46	4.7	9	1	13.40	4.73
	3	23	13.76	4.80	6	6	13.87	4.7
	4*	21	14.50	4.90	4	6	14.40	4.78
	5*	24	14.72	5.36	1	6		
	6†	22	14.00	4.63	6	1		
B	1	29	12.74	4.67	1	7	12.34	4.62
	2	27	13.23	4.63	2	7	12.80	4.60
	3	28	13.92	4.64	3	6	13.60	4.69
C	1	30	11.62	4.39	1	8	11.27	4.76
	2	35	12.27	4.32	2	7	11.85	4.36
	3	39	12.6	4.41	6	6	12.40	4.44
	4†	34	15.00	4.41	4	6		
D	1	27	13.06	4.60	1		12.90	4.61
	2	26	12.70	4.66	2		15.00	4.72
	3	25	14.70	4.40	4		14.30	4.71

\* Five milligrams of iron given daily in form of ferrie ammonium citrate.  
† Three daily determination.

blood determination, and still no measurable relation existed. It was therefore concluded that these daily values were not influenced by an occasional loss of sleep.

In addition to the daily variations in these blood components chart 1 demonstrates a definite upward trend of hemoglobin values for each of the four subjects over the period of the study. The increases amount in every case to 1 Gm or more of hemoglobin per hundred cubic centimeters of blood. Such a trend is not observed in the red cell values, these remain remarkably constant throughout the experimental period for each subject. Of special interest in this regard is subject A. During her fourth and fifth menstrual cycles she was given a daily supplement of 5 mg of iron in the form of ferrie ammonium citrate. The total amount of iron thus added to the diet was 225 mg. The average hemoglobin concentration expressed in grams per hundred cubic centimeters of blood rose from 13.8 for cycle 3 to 14.8 for cycle 4 and 14.7 for cycle 5. The average red cell values were 4.80, 4.80 and 5.36 million per cubic millimeter for cycles 3, 4 and 5. During cycle 6 the iron therapy was discontinued. Blood determinations for the last three days of this cycle showed that the hemoglobin and red cell content had fallen to 14 Gm and 4.53 million respectively.

The influence of the menstruation process on the blood picture is the next point for consideration. In the accompanying table the average daily hemoglobin and red cell values for each menstrual cycle for each subject are compared with the average daily values for the menstrual period in each cycle. In the entire series the differences between the averages for the menstrual cycle and the menstrual period within the cycle do not exceed the experimental error of the method. The hemoglobin for subject D for cycle 2 is the only exception to this, it averages 13.7 Gm for the cycle and rises to 15 during the five days of menstruation. From

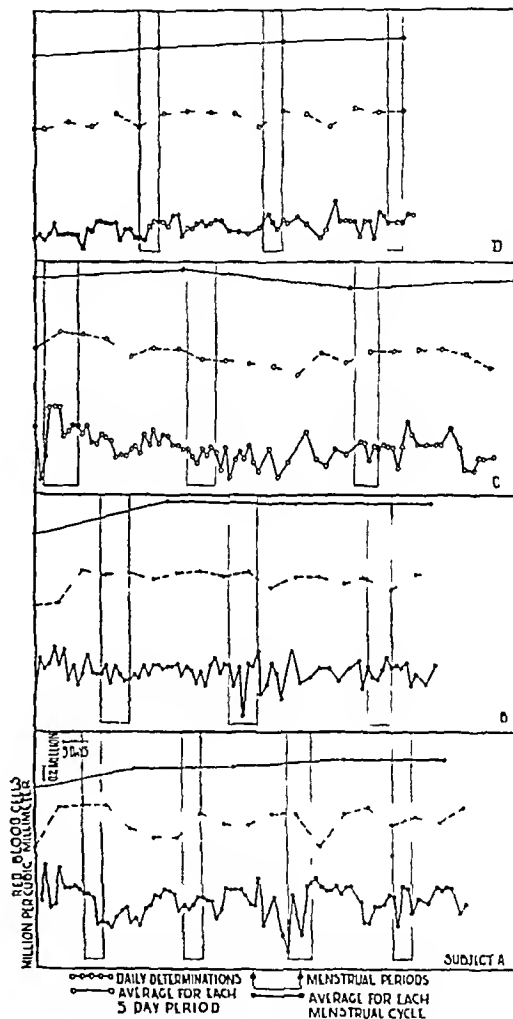


Chart 2—Variation in red cell values of normal women

these data it appears that there is no definite consistent effect of the process of menstruation on the daily values during the entire menstrual cycle for any of the subjects. That the averages for the hemoglobin and red cell content presented in the table do not mask any regular rise and subsequent drop in either component is evidenced by the daily values plotted in charts 1 and 2.

Since it has been shown that there are daily variations in both hemoglobin and red blood cells which sometimes exceed the experimental error one may well wonder whether these greater variations occur in some definite relation to the menstrual period. In an effort to answer this question and yet lacking sufficient data for a correlation technique, the magnitude of the day to day variations in the hemoglobin and red blood cell values was calculated for four stages of the cycle. The

premenstrual period, which includes the seven days preceding the flow, the menstrual period, which varies in length according to the individual, the postmenstrual period, which includes the seven days following the cessation of the flow, and the intramenstrual period, which includes the days between the end of the postmenstrual period and the premenstrual period of the succeeding cycle. The results indicate that not only do the greater number of daily variations lie within the limits of experimental error but that when marked variations occur they do so irrespective of the different phases of the menstrual cycle.

#### COMMENT

Choosing a standard of normality with which to compare the hemoglobin values of these subjects presents difficulties because methods of determination and expression of results of such determinations by different workers are lacking in uniformity. According to the figures compiled by Peters and Van Slyke,<sup>7</sup> the normal hemoglobin content of the blood of women between 16 and 60 years expressed in terms of oxygen capacity is  $190 \pm 2$  volumes per cent. With Hufner's<sup>8</sup> factor of 1.34 for the oxygen combining power of a gram of hemoglobin it may be estimated that 19 volumes per cent oxygen represents  $\frac{190}{1.34} = 141$  Gm. of hemoglobin per hundred cubic centimeters of blood. Compared to this standard, each subject in this study was below normal in respect to the hemoglobin concentration of her blood at the beginning of the study, the values were 12.95, 12.54, 11.62 and 13.06 Gm. for subjects A, B, C and D respectively. However, these values increased to 14, 13.92, 13 and 14.3 Gm. during the period on what is believed to be an adequate diet.

The significance of these increases in average hemoglobin content is worthy of consideration. In view of the fact that the average standard deviation was 0.9 Gm. and that 23 per cent of all the daily variations which occurred ranged from 0.6 to 1 Gm. per hundred cubic centimeters, the observed rise may appear to be merely within the range of normal daily variations. However, this is hardly an adequate explanation for the constant increase of the hemoglobin of every subject. Also any consistent change in the same direction in the hemoglobin values during the experimental period would tend to increase the standard deviation. Furthermore, the figures from which the increases are calculated are averages of many daily determinations throughout the cycles and not values of single determinations.

It is interesting to calculate what these possible increases in hemoglobin concentration mean in terms of iron storage. Subject A weighs 59 Kg. With Ching and Harrop's<sup>9</sup> average figure for total blood volume of 70 cc. per kilogram, subject A would have 4130 cc. of blood. An increase of 1 Gm. of hemoglobin per hundred cubic centimeters of blood would total 41.3 Gm. of hemoglobin. Since hemoglobin is 0.34 per cent iron, this increase would represent the storage of 140 mg. of iron above that used for daily metabolic needs and for losses in the menstruum. Similarly an increase of 1 Gm. of hemoglobin per hundred cubic centimeters of blood would represent a storage of 142, 107 and 128 mg. of iron in subjects B, C and D respectively. When this storage is expressed per kilo-

gram of body weight the value is 2.3 mg. for every subject. If the increases in hemoglobin in all the subjects are significant, the storage of these amounts of iron is of practical importance. It would indicate that, although the diet contained only the standard recommendation of from 10 to 15 mg. of iron daily, this amount was sufficient to allow for storage when other dietary essentials were liberally supplied.

The addition of 5 mg. of iron daily in the form of ferric ammonium citrate to the diet of subject A during cycles 4 and 5 meant an increase of 115 mg. of iron above that furnished by the daily diet during each cycle. From the table it may be seen that the hemoglobin concentration rose 1 Gm. during the first cycle of the iron therapy and remained at this higher level during the second cycle. Three determinations made at the end of the study indicate that it had dropped 0.7 Gm. during the last cycle when the iron supplement was discontinued. It is not possible to generalize from such meager data, but certainly this is a field worthy of further investigation. Considering that a person's daily diet contains only about 10 to 15 mg. of iron, it is not surprising that a long time is required to increase hemoglobin concentration significantly when no additional, readily available iron is supplied for blood building purposes. Verification of this theorizing may be possible when the iron analysis of all the foods, feces and menstrua for each subject are complete. The question may well be raised as to whether the subjects had, at the end of the study, attained an optimum iron content of their tissues or whether succeeding months under the experimental regimen would have resulted in further storage of this mineral.

The fact that the average standard deviation of all the hemoglobin determinations is 0.9 Gm. per hundred cubic centimeters of blood when the subjects were under reasonably controlled conditions suggests the reservations necessary in interpreting the significance of single determinations.

If the standard for the normal red blood cell values for women is calculated from the figures summarized by Peters and Van Slyke,<sup>7</sup> normal adult blood with an oxygen capacity of 19 volumes per cent contains 4.8 million cells per cubic millimeter. This is higher than the standard of from 4 to 4.5 million usually given in physiology textbooks. In either case the number of red cells in the blood of these subjects is within the normal range, the mean values were 4.8, 4.6, 4.4 and 4.6 for subjects A, B, C and D respectively. In the case of subject A during the iron therapy the number of red cells increased 0.5 million during the last half of the iron therapy period. Although the significance of this may be questioned, it is of interest to note that the number decreased almost a million when the ferric ammonium citrate was discontinued.

#### SUMMARY AND CONCLUSIONS

The hemoglobin and red cell content of the blood of four normal women on a constant diet was determined almost daily for three months. Analysis of the data shows the occurrence of daily variations in both hemoglobin and red cells, the majority of which are not greater than the experimental error. The standard deviation for the entire series is 0.9 Gm. for hemoglobin and 0.31 million for red cells.

There was a definite upward trend in the hemoglobin values of every subject during the entire period. The values increased from 12.95, 12.54, 11.62 and 13.06 Gm. per hundred cubic centimeters for subjects

<sup>7</sup> Peters J. P. and Van Slyke D. D. *Quantitative Clinical Chemistry*, Baltimore, Williams & Wilkins Company, 1944, 547, 1932.  
<sup>8</sup> Hufner G. *Arch. Anat. Physiol.* 209, 1907.  
<sup>9</sup> Ching H. C. and Harrop G. A. Jr. *J. Clin. Investigation* 5, 9 (April) 1928.



A, B, C and D respectively for the first menstrual cycle to 14, 13.92, 13 and 14.3 Gm for the last cycle in the study. There is a possible significance of these increases, since they suggest a storage of measurable amounts of iron from a diet containing only the usual standard recommendation for this mineral but well fortified in other dietary essentials.

The red cell count remained remarkably constant for all subjects throughout the experiment. In one case when 5 mg of iron from ferric ammonium citrate was given daily during two menstrual cycles the red cell content increased 0.5 million per cubic millimeter and the hemoglobin content increased 1 Gm per hundred cubic centimeters. These higher values were not maintained when the citrate was discontinued.

From the data presented it appears that there is no definite or consistent measurable effect of the process of menstruation on the daily values of either hemoglobin or red cells in the subjects studied. Although occasional marked daily variations in the blood values occur, they do so irrespective of the different phases of the menstrual cycle.

The results of this study emphasize the fact that the existence of normal daily variations in hemoglobin and red cell count, even in subjects under controlled conditions, must be recognized when one judges the significance of single determinations or the influence of the menstruation process on these blood constituents.

## CHLOROSIS

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Textbooks today describe chlorosis as a disease of unknown etiology which has disappeared mysteriously. In order to define chlorosis, therefore, it is necessary to refer to descriptions written at the time when the disease was most prevalent. Although the classic account by Johannes Lunge in 1554<sup>1</sup> referred to the disease of virgins "De Morbo Virgineo" as a well known entity, and although Sydenham (1661) and Willis (1681) described the efficacy of iron therapy in the disease, the years associated with its popular recognition were from 1830 to 1900. In 1836 Ashwell<sup>2</sup> described fifteen cases of chlorosis characterized by anemia appearing in adolescent girls, invariably associated with menstrual irregularity and often complicated by gastro-intestinal or pulmonary "affections." He also commented on their depraved appetite and insufficient diet. Most accounts during the nineteenth century were in record with the description by Ashwell. It is evident that, in addition to anemia, a number of the patients had peptic ulcer or tuberculosis. Thus Bramwell,<sup>3</sup> in 1899, reviewing 314 typical cases wrote "Epistaxis occasionally occurs, but other haemorrhages are rare except in those cases in which hæmatemesis results from associated ulceration of the stomach. The anæmic condition undoubtedly predisposes to the production of the ulceration."

Later descriptions were more precise in the definition of chlorosis. Von Noorden<sup>4</sup> in 1905 described it as "a disease common at puberty and throughout the succeeding ten years, occurring in the female sex, characterized by anemia, spontaneous in origin." In reviewing 217 cases he cited a considerable number arising in the same family. Besides symptoms referable to anemia, a very large number suffered from gastro-intestinal disturbances, such as anorexia, epigastric pain, vomiting and constipation. Analysis of the symptomatology of his cases in addition to those of other authors discloses no unanimity of opinion regarding gastric acidity and menstrual disorders in chlorosis. In the majority there appeared to be normal or increased gastric acidity and likewise irregular or scanty menses. However, it is also evident from many observations that hyperacidity or scanty menses were not necessary attributes of chlorosis, likewise, that the green color was by no means essential to the diagnosis.<sup>5</sup>

In 1923 Campbell<sup>6</sup> reviewed the symptomatology of 104 cases that had entered Guy's Hospital between 1888 and 1922. His description of the disease agreed in the main with von Noorden's, and he also pointed out that an appreciable number had low gastric acidity and that in some instances the symptoms persisted several years.

Consequently the definition of chlorosis is not based on exact criteria. At best it may be defined as hypochromic anemia in adolescent girls or young women, usually associated with gastro-intestinal and menstrual disorder.

## THEORIES OF PATHOGENESIS

There have been many different explanations for the occurrence of chlorosis. Prominent among them are deficient development of the vascular system, constitutional weakness of the blood-building organs, ovarian insufficiency, digestive disturbances due to reflexes from the developing female sex organs, and neurosis or gastroparesis. None of these are tenable, since the disease is readily corrected by the administration of iron. A sound and little appreciated critical treatise was written by Stockman<sup>7</sup> in 1895, who believed that all other factors were but contributory and predisposing to two great and direct causes, "namely, blood loss and insufficient supply of iron by the food." In his analysis of three cases he found the iron intake to average between 1.3 and 3.2 mg daily. "Whereas the menses may not have been excessive, such a loss was relatively great and poorly sustained when the intake was deficient in iron. Further, girls develop with extreme rapidity from 15 to 18, throwing a great strain on the organism which suffers in various ways besides in blood forming."

Because of the supposed rarity of chlorosis and the apparent mystery that still enshrouds its etiology, four cases that entered this clinic in the past two years are presented. Since this hypochromic anemia responded readily to the administration of iron, study of causes for iron deficiency in these patients was made. In general our observations support the contention of Stockman

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) Boston City Hospital and the Department of Medicine, Harvard Medical School.

1 Lunge Johannes. De Morbo Virgineo. Epitola XXI Medicinalium epistolarum miscellanea. Basle 1554 p 74 quoted by Major R H. Classic Descriptions of Disease. Baltimore C C Thomas 1932 p 444.

2 Ashwell D. Observations on Chlorosis and Its Complications. Guy's Hosp Rep 1 529 1836.

3 Bramwell B. Anæmia and Diseases of the Blood Forming Organs and Ductless Glands. Edinburgh Oliver & Boyd 1899 pp 22-25.

4 von Noorden Carl. In Nothnagel. Encyclopedia of Practical Medicine. Philadelphia W B Saunders Company 1905 p 337-336.

5 Allbutt T C. In Allbutt T C and Rolleston H D. A System of Medicine ed 2. London Macmillan & Co Ltd 5 681-727 1909. Cabot R C. In Osler William and McCrae Thomas. Modern Medicine. Philadelphia Lea & Febiger 4 639-648 1908.

6 Campbell J M. Chlorosis. A Study of the Guy's Hospital Cases During the Last Thirty Years with Some Remarks on Its Etiology and the Causes of Its Diminished Frequency. Guy's Hosp Rep 73 247 (July) 1923.

7 Stockman R. Observations on the Causes and Treatment of Chlorosis. Brit Med J 2 1473 1895.

that chlorosis is attributable to insufficient intake of iron, to blood loss and to the demands for iron made by growth

#### CLINICAL ASPECTS

Two of the patients were 15 years of age and two were 16. In two cases the mother was definitely anemic before the birth of the patient and one of the mothers now has a pronounced chronic hypochromic anemia with achylia, glossitis, dysphagia and koilonychia. The mother of the third patient was and is definitely underweight, but there is no record of the blood picture. The grandmother of the fourth patient was treated for anemia twenty years previously at this hospital. There is no record of the mother's blood picture.

Dietary histories were taken carefully in all four cases. Their appetites were uniformly poor and capricious and their diets had been markedly deficient in meat, green vegetables and fruit for several years. The iron contents of the diets were estimated at 4.9, 5.4, 6.9 and 6.8 mg daily in contrast to the normal of about 15 mg.

In no case was there complaint of dyspepsia, nausea, vomiting or diarrhea, but the lack of appetite and particularly the lack of non-containing foods in the diet was pronounced.

Gastric analysis was performed on the four patients. In one there was normal gastric secretion. In two there was free gastric acidity only after the injection of histamine. The fourth patient had post-histaminic anacidity. This was the daughter of the patient who now has chronic hypochromic anemia and achylia. Stool examinations were uniformly negative for blood.

Symptoms arose in three of the patients one year and in one patient two years after the onset of the menses. In two cases the menses came at intervals of twenty-eight days with moderate flow for four days each; in one case at intervals of three weeks with excessive flow for one week; in another the intervals were seven weeks apart, with moderate flow for one week. In addition to the loss of blood during the menses, two patients gave a history of recurrent nosebleeds for several years without apparent local cause.

All four cases exhibited characteristic blood pictures of chlorosis with hypochromic microcytic anemia.

#### ANALYSIS OF FACTORS RESPONSIBLE FOR IRON DEFICIENCY

(a) *Growth*—The growth of these patients as determined by the height-weight gains recorded in their school reports, was normal except in case 1 in which growth was very rapid with a gain in body weight of 19 pounds (8.6 Kg.) in twenty-one months preceding entry to the hospital. With growth there is an increase not only in body surface but also in circulating blood volume. The blood volume may be approximated as 2,430 times the body surface at 14 years of age.<sup>9</sup> In the average 14-year old girl this amounts to 3,650 cc of blood and at the age of 15 years to 3,990 cc, an increase of 340 cc. There is a gain also in extra-circulatory tissue iron at this age, which provides an additional demand during growth and which may be judged equivalent to about one-tenth the circulating blood iron.

(b) *Blood Loss*—In two patients the menses were normal, in one they were increased and in one they were scanty. Whereas statistics of menstrual loss are widely variant, a conservative estimate is 50 cc per period, or

650 cc annually. This corresponds to a daily loss of about 1 mg of iron throughout the year.

Consequently, when one adds to the growth requirement of 340 cc of blood from 14 to 15 years of age the average annual menstrual loss of 650 cc, the total 990 cc of blood becomes a sizable drain on the iron store of a patient with an insufficient dietary intake.

Finally, nosebleeds provided an added insult to the depleted blood reserve in two cases. Thus patient 2 lost about two tablespoonfuls every month, or an annual loss of about 360 cc, and patient 3 lost about one cupful three times yearly, an annual loss of about 375 cc.

(c) *Diet*—It has been shown that a daily diet containing 5 mg of iron is adequate to maintain iron balance in the adult male and to maintain a normal hemoglobin level over a long period of time.<sup>9</sup> It has also been shown that only a portion of the food iron is available for hemoglobin production in experimental anemia of rats,<sup>10</sup> and, although similar studies have not been reported on man, the evidence is clear that analogous conditions exist. It is likely, then, that the adult male needs considerably less than 5 mg of iron as such daily for maintenance. Indeed, Lintzel's<sup>11</sup> studies suggest that balance can be maintained in the normal man with an iron intake of less than 1 mg daily.

TABLE 1—Average Daily Diet of Case 4

	Food	Mg of Iron
Breakfast	Tea	0.03
	Sugar	0.03
	Cream	0.07
	Bread	0.76
Luncheon	Bread	1.50
	Butter	0.06
	Fruit	0.41
Supper	Bread	0.76
	Potato	0.69
	Butter	0.06
	Meat	0.50
	Vegetable	0.30
	Milk	0.42
		5.41

In adolescent girls, however, growth and blood loss increase the iron requirement well above that of the adult male and when further hemoglobin production is demanded in the face of an established anemia still greater iron intake is obviously needed. A typical diet of the four chlorotic patients is recorded in table 1, which is the average daily diet in case 4 with iron equivalents estimated according to the analyses of foods by Toscani and Reznikoff.<sup>12</sup> Theoretically an iron intake of 5.4 mg could satisfy the maintenance needs of this patient, but with only a portion of the food iron available such a diet could not efficiently make up the hemoglobin deficit. Indeed, an optimal diet is barely helpful in overcoming chlorotic anemia. For example, patient 2 was given a diet rich in iron and protein for twenty days, during which time the hemoglobin rose from 30 to 36 per cent. Directly after this period 3 Gm of ferric ammonium citrate was administered daily and there followed a rise of hemoglobin from 36 to 73 per cent in sixteen days.

9 Farrar G. E. Jr and Coldhamer S. M. The Iron Requirement of the Normal Human Adult. *J. Nutrition* 10: 241 (Sept. 10) 1935.

10 Sherman W. C., Elvehjem C. A. and Hart E. B. Further Studies on the Availability of Iron in Biological Materials. *J. Biol. Chem.* 107: 383 (Nov.) 1934.

11 Lintzel W. Zur Frage des Eisenstoffwechsels ueber den Eisenbedarf des Menschen. *Ztschr. f. Biol.* 89: 342 1929.

12 Toscani V. and Reznikoff Paul. The Iron Content of Foods Used in a Municipal Hospital. *J. Nutrition* 7: 79 (Jan.) 1934.

It appears, therefore, that an iron-poor diet is important not in the direct causation of anemia but rather in the failure to restore normal hemoglobin in anemia occasioned by growth and blood loss

After the normal hemoglobin concentration has been reached with inorganic iron therapy, a suitable diet is probably adequate to supply the usual maintenance needs. Thus, after reaching a normal hemoglobin concentration with iron, patient 3 has maintained this level for nine months with a good diet and no iron

COMMENT

It is apparent from the analysis of these cases that insufficient intake of iron, loss of iron by menstrual and other blood loss, and the demands for iron by a growing organism are three important factors in the production of chlorosis. It is also interesting to note that in at least two of the four cases definite evidence of anemia of the mothers was obtained. It is not unlikely that these patients inherited a meager iron store at birth<sup>13</sup> and that in childhood they may have had a larval chlorosis, which reached a clinical level when the limited iron store was taxed by menstruation and by the demands for iron made by growth. In chlorosis there may therefore be a constitutional<sup>14</sup> factor in the sense of a poor iron storage endowment.

It is interesting to speculate on the rarity of the disease now as compared to its common prevalence some years ago. Part of this decline in incidence is only apparent. With the advent of x-ray examinations and of tests for the detection of occult blood in the stool (1900-1904) many cases of so-called chlorosis would now be attributable to tuberculosis or peptic ulcer. This has been pointed out by von Hoesslin<sup>14</sup> and von Willebrand.<sup>15</sup> With accurate measures for hemoglobin determination introduced in 1902 (Sjlihl)<sup>16</sup> a group of patients considered pale would now be found to have normal hemoglobin and would be considered to have one or another nervous disorder.

However, even with the elimination of such faulty diagnoses there probably did exist a large number of cases of chlorosis. The environmental changes and the emancipation of women from a cloistered sedentary life which has taken place undoubtedly lead to a better appetite and to a diet richer in iron-containing foods.

In contrast to the rarity of severe forms, mild degrees of chlorosis are now very common.<sup>16</sup> In the routine examination of student nurses between the ages of 18 and 23 at this hospital it was found that 26 per cent of thirty-eight girls considered healthy had moderate anemia, with hemoglobin between 70 and 79 per cent (Sjlihl).

Of interest is the common finding now of hypochromic anemia in middle-aged women, particularly since Faber's<sup>17</sup> description of the syndrome in 1909. The popular recognition of this syndrome following the decline of adolescent chlorosis might indicate perhaps a shift toward a later age group. Frequently these patients give the history of having been pale or anemic in girlhood. It is impossible at present to define the relationship between the two conditions. Witts<sup>18</sup>

makes a sharp clinical distinction based on the finding of gastric acidity in chlorosis and of achylia gastrica and glossitis in the older age group. Bloomfield<sup>19</sup> however, argues that such distinctions are unwarranted and arbitrary.

There can be no doubt that the four cases presented here correspond closely to early descriptions of chlorosis. It is our opinion that the disease has not disappeared. Since its cause depends on conditions that are universally current, such as growth, blood loss and inadequate diet, it is unlikely that it should disappear.

CONCLUSIONS

- 1 Chlorosis has not disappeared
- 2 In the analysis of factors responsible for anemia in four cases of chlorosis, definite cause for iron deficiency was shown
- 3 Chlorosis is the exaggeration of a normal tendency toward anemia in adolescent girls, created by the increased demand for iron made by growth and by menstrual or other blood loss, and by diet insufficient in iron-containing foods

REPORT OF CASES

CASE 1—A girl, aged 15 years, in November 1935 complained of shortness of breath and weakness. Her father had tuberculous adenitis. Her mother was anemic at the time of the

TABLE 2—Initial Blood Counts in Four Cases of Chlorosis

Case	Red Blood Cells per Cu. Mm.	Hemoglobin per Cent	Hematocrit per Cent	Mean Corpuscular Volume Cu. Mlc.	Mean Corpuscular Hemoglobin Concentration per Cent	White Blood Cells per Cu. Mm.	Differential Leuko- cyte Count per Cent			
							Polymorpho- nuclears	Lymphocytes	Mononuclears	Eosinophils
1	4 070 000	34				8 800	75	18	14	13
2	2 500 000	29	17.4	73.4	26	7 000	75	12	7	10
3	4 200 000	44	25.0	70.0	27	15 400	91	7	12	1
4	4 060 000	40	21.5	73.7	26	7 350	54	30	15	1

\* The red blood cell in all cases were pale and small. They showed marked variation in shape. Blood platelets were normal.

patients' birth. In childhood the patient was underweight and was subject to frequent colds. Her appetite had been capricious and her diet had been poor in iron-containing foods during the past three years. In the twenty-one months preceding entry, growth was rapid with a gain of 19 pounds (8.6 Kg.).

In February 1934 several x-ray examinations of the chest were made, but no abnormality was noted. In November 1934 the catamenia began, and the menstrual periods have since recurred at twenty-eight-day cycles with four days of moderate flow. In October 1935 the patient complained of weakness, headache, palpitation and shortness of breath. There was no history of bleeding or of any disorder of the gastro-intestinal or genito-urinary tract.

The patient was very pale and tired looking. Several teeth were decayed. The papillae of the tongue were normal. The lungs and heart were normal. A soft systolic murmur was heard in the area of the pulmonary valve. Examination of the abdomen, pelvis and rectum showed no abnormality. The finger nails were thin, flat and brittle. The reflexes were physiologic.

The urine and stools were normal. Gastric analysis revealed normal gastric secretion. The blood Kahn reaction was negative. Details of the blood counts are given in table 2.

The patient improved rapidly with iron therapy. In one month the hemoglobin rose from 34 to 66 per cent. The patient felt well.

CASE 2—A girl, aged 16 years, entered the hospital in February 1934 because of weakness. Her grandmother had

13 Strauss M. B. Anemia of Infancy from Maternal Iron Deficiency in Pregnancy. J. Clin. Investigation 12: 345 (March) 1933.  
14 von Hoesslin H. Zur Abnahme der Chlorose. Munchen med. Wehnchr. 85: 553 (May 21) 1926.  
15 von Willebrand F. A. Der Gesundheitszustand bei Perimen- der fruheren Chlorose. Acta med. Scandinav. (suppl.) 3: 247 1922.  
16 Davidson L. S. P. Fullerton H. W. and Campbell R. M. Nutritional Iron Deficiency. Anemia. Brit. M. J. 2: 195 (Aug. 3) 1932.  
17 Faber K. Achylia gastrica mit Anemie. Med. Klin. 5: 1310 1909.  
18 Witt I. J. Simple Achlorhydric Anemia. Guy's Hosp. Rep. 50: 253 (July) 1930.

19 Bloomfield A. I. Relations Between Primary Hypochromic Anemia and Chlorosis. Arch. Int. Med. 50: 328 (Aug.) 1932.

been treated for anemia twenty years before. In childhood the patient enjoyed robust health. On moving from the country to the city two years before, the family lived in cramped lodgings. The patient's appetite failed and she developed a dislike particularly for meat and green vegetables. For several years, moderate nosebleeds occurred on the average of once a month. For one year menstruation came at cycles of three weeks with excessive flow for one week. Two weeks before entry the patient fainted.

On examination she was thin, extremely pale and listless. The teeth were carious. The nose showed no bleeding point or ulceration. The papillae of the tongue were normal. The lungs were clear and the heart was normal except for a rapid rate and a systolic murmur in the area of the mitral valve. The remainder of the examination was negative.

The urine and stools were normal. Gastric analysis yielded only a trace of free hydrochloric acid after the injection of histamine. The blood Kahn reaction was negative. Detailed blood counts are listed in table 2.

With iron therapy the red blood cells increased from 2,370,000 to 4,370,000 and the hemoglobin from 29 to 87 per cent. The menstrual periods now appear at twenty-eight-day cycles with average flow. Occasional nosebleeds recur. The diet is ample and the patient feels strong. A normal blood level has been maintained four months without iron therapy.

CASE 3—A girl, aged 15 years, entered the hospital in February 1935 because of pneumonia, from which she promptly recovered by crisis. Born and brought up on a farm, the patient was in sound health until her family moved to the city. At 9 years of age, because of ill health, the patient returned to the farm for two years. Since she was 9 years of age, rather severe nosebleeds had occurred about three times a year. The menses began at 12 years and have persisted up to the present time in cycles of seven weeks with one week of moderate flow. Her appetite had been poor for several years and her diet very sparing in iron-containing foods. For two years she had been noticeably pale. For one year she had complained of palpitation, precordial ache and easy breathlessness.

The signs of pneumonia in the left lower lobe disappeared after several days. Except for pallor there were no physical abnormalities.

Urine and stool examinations were negative. Gastric analysis showed only 7 units of free hydrochloric acid after the injection of histamine. The blood Kahn reaction was negative. Detailed blood counts are listed in table 2.

With iron therapy and a suitable diet the patient made rapid recovery. The hemoglobin increased from 44 to 87 per cent in six weeks. Although no iron has been taken for nine months the patient's hemoglobin is now 96 per cent. She feels well.

The lungs were normal. The heart was not remarkable except for a rapid rate and a systolic murmur heard all over the precordium. Examination of the abdomen, pelvis, rectum and extremities showed no abnormalities. The reflexes were physiologic.

The urine and stools were normal. Gastric analysis showed complete absence of free hydrochloric acid after the injection of histamine. The blood Kahn reaction was negative. Initial blood counts are listed in table 2.

With iron therapy recovery was prompt, with a rise of hemoglobin from 40 to 81 per cent in two months. For one year normal values have been maintained with small amounts of iron, and for the past seven months without iron. Gastric analysis repeated one year after entry showed a return of free hydrochloric acid without the stimulus of histamine. Her diet is now ample in iron-containing foods, and she feels well.

## Clinical Notes, Suggestions and New Instruments

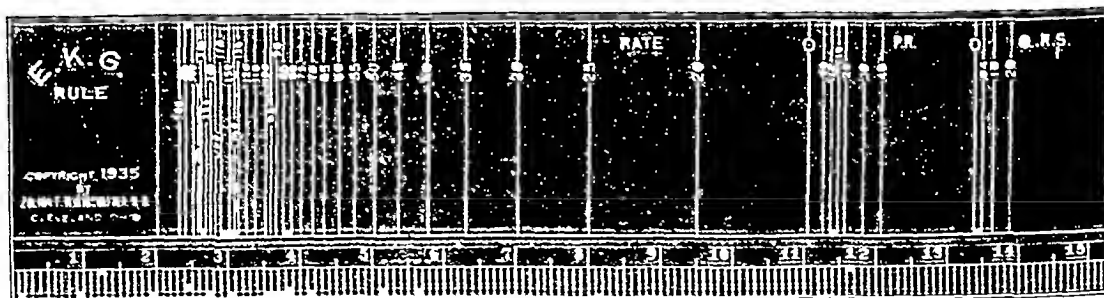
### A RULER FOR DETERMINATION OF ELECTROCARDIOGRAPHIC VALUES

ZOLTON T. WIRTSCHAFTER, M.D., CLEVELAND

A transparent celluloid ruler measuring 15 by 4 cm. has been devised, which enables one to determine auricular and ventricular rates and PR and QRS intervals directly from electrocardiographic tracings. The method generally employed at present involves the use of dividers, counting time intervals and subsequent mathematical calculations, for the determination of these values, especially rates. This comparatively cumbersome procedure, at its best, often leads to errors.

The principle on which this ruler was devised is quite simple. The motor speed of most electrocardiograph machines is so adjusted that 2.5 cm. of film is exposed per second. Hence, a record is produced in which the large interval, representing 0.20 second, covers a distance of 0.5 cm., while the small division, representing 0.04 second, extends over a distance of 0.1 cm. On this basis one can easily calculate the space covered by a single cardiac cycle at any heart rate. These values for a selected number of cardiac rates have been calculated and as seen in the accompanying illustration, vertical lines have been constructed at the corresponding distances from an abscissa at the left end of the rate scale.

The rate scale is employed in the following manner. To determine the ventricular rate, the ruler is placed over the



Ruler for determination of electrocardiographic values

CASE 4—A girl, aged 16 years, entered the hospital in November 1933 because of excessive weakness of several months' duration. Her mother had chronic hypochromic anemia with achilia gastrica, glossitis and koilonychia. For several years the patient's appetite had been poor and her diet had been sparing in meat, green vegetables and fruit. Catamenia began at 14 years with the menses appearing at twenty-eight-day cycles and lasting from three to four days with moderate flow. There was no history of bleeding or of any disorders of the gastro-intestinal or genito-urinary tract.

The patient was well developed but slim and her skin had an olive gray pallor. The teeth were in poor repair. The tonsils were hypertrophied. The papillae of the tongue were normal.

electrocardiographic tracing so that the abscissa at the left side of the rate scale coincides with point R (apex or sharp peak of ventricular complex). The corresponding point of the next cycle will coincide with the reading for the ventricular rate at that particular point in the record. The auricular rate can be determined similarly by using the apex of the auricular wave (P) instead of point R. By repeating this process at various parts of the record any arrhythmia quickly becomes apparent.

On the same basic principle, PR and QRS scales have been included in the ruler, 1 mm. is equivalent to 0.04 second. Thus when the zero line of the PR scale is placed over the

beginning of the P wave, the end of the PR interval coincides with the time value of the interval on the scale. The lines for the limits of normal, namely, 0.12 and 0.20 second, are made heavier. In a similar manner, when the zero line of the QRS scale is placed over point Q, point S coincides with the time value of the QRS interval on the scale. Again, as in the PR scale, the limits of normal of the QRS interval, 0.04 and 0.10 second, are indicated by heavier lines.

An ordinary metric scale is placed along one edge of the ruler. In addition to the usual uses of a metric scale it is intended to be employed to measure the height (voltage) of the various complexes.

In some cases, because of the haziness of the tracing some difficulty may be encountered in attempting to visualize the record clearly through portions of the ruler. This may be obviated by holding the ruler at a 45 degree angle with the surface of the record reading the beveled edge of the ruler instead of reading through the celluloid. Indeed several cardiologists who have employed the instrument prefer to use it in this manner at all times.

Examination of a large number of electrocardiographic tracings has revealed that approximately 85 per cent of all records may be accurately interpreted with this instrument. The motor speeds of the other machines vary somewhat from the standard mentioned. However, it is possible to adjust the speed of these motors to conform with the standard rate. One can quickly determine whether the ruler may be used on records from any individual apparatus by measuring the distance covered by two of the large time intervals, which distance should equal 1 cm.

The utilization of this ruler enables one to interpret an electrocardiographic tracing with greater facility than the present methods allow. Errors in mathematics are largely eliminated, since no calculation is necessary.

908 Keith Building

#### A BRACE FOR THE TRANSPORTATION AND HANDLING OF PATIENTS WITH INJURIES OF THE CERVICAL VERTEBRAE

LOUIS T. WRIGHT, M.D., NEW YORK

There has been no brace designed to my knowledge for the transportation and handling with safety of patients with acute fractures and dislocations of the cervical vertebrae. The only

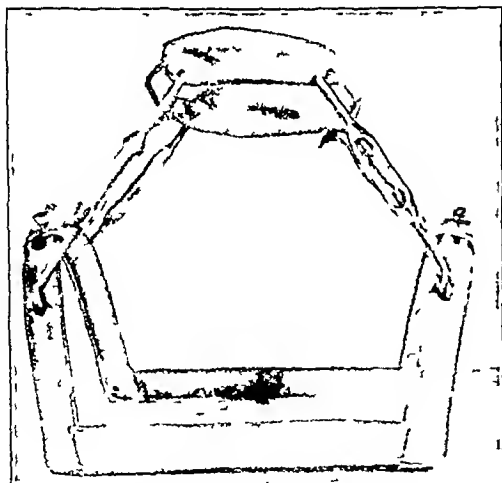


Fig 1—Appearance of the brace

point stressed in making this brace was that it should be so solidly and firmly constructed that it would not slip once it had been applied. It is adjustable and any degree of hyperextension and traction on the head is easily obtained by means of four turnbuckles.

The necessity for such a brace occurred to me because we had in the wards several patients with injuries of the cervical spine whom we were afraid to move for roentgen examination.

From the Surgical Service of Harlem Hospital, Dr. C. S. B. Cassa, Director.

for fear that harm might result. It was therefore with the idea of supporting the neck during roentgen examinations in these cases that this brace was made, and for that reason the obliquely vertical rods were placed so as not to interfere with the lateral and anteroposterior x-ray views.



Fig 2—Anteroposterior view of the brace when applied

It subsequently occurred to me that the use of such a splint might possibly prove of value in the transportation of a patient with an injured cervical spine to the hospital if applied by an ambulance surgeon at the scene of the accident. The chin piece



Fig 3—Lateral view of the brace when applied

is so arranged that it can be turned down out of the way when it is necessary to take a roentgenogram through the open mouth as is the case in fractures of the atlas and axis. I make no claim for originality, as doubtless a similar apparatus has been in use although I do not know of it. The Thomas collar and

the Young head piece attached to the Taylor brace will maintain a certain degree of hyperextension of the head, but they are used during the convalescent period, after reduction and plaster cast immobilization, and they are too unstable to depend on during the acute dangerous period when further displacement may occur. There has been insufficient emphasis placed on the management of this phase in the treatment of these injuries, and if this note stimulates an added interest in this special problem it will be more than worth while.

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## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER Secretary

### COMPREX SHORT WAVE DIATHERMY UNIT ACCEPTABLE

Manufacturer: Compres Oscillator Corporation, New York

This unit is recommended by the manufacturer for medical and surgical diathermy. Standard equipment includes cuff electrodes and attachments for tissue cutting and coagulation.

The machine is of the two-tube oscillator type, with a patient circuit inductively connected to the tank circuit. The power input is about 660 watts, and the wavelength between 15 and 16 meters. Since there is no acceptable method for measuring the output power of diathermy machines, this value is not stated. Operating the unit under full load for two hours indicated that the temperature rise of the transformer and of the cabinet was within the limits of safety established by the Council. The shipping weight is about 52 pounds. Figure 2 is a diagram of the circuit.

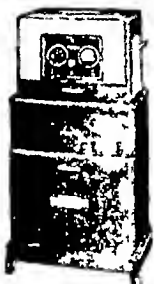


Fig. 1—Compres Short Wave Diathermy Unit

The tissue heating ability of the machine was investigated and the evidence submitted was verified in a clinic acceptable to the Council. Cuff electrodes, about 6 cm wide and about 57 cm long, were used. When applied to the patient, the cuffs were separated from the skin by about 17 cm spacing, consisting of cellucotton pads. The distance between the center of the cuffs is about 20 cm. Thermocouples were introduced into the subcutaneous and deep-lying tissues (quadriceps extensor) of the human thigh. The machine being operated at the patient's tolerance, the temperature rise (average of eight tests) was observed at the begin-

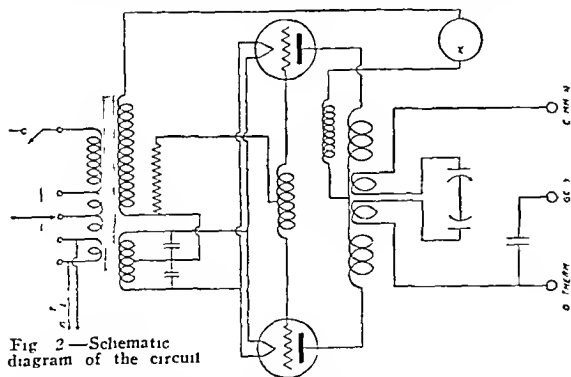


Fig. 2—Schematic diagram of the circuit

ning and end of twenty-minute application periods the thermocouples being removed during the treatment. According to the results of this test the temperature rise of the deep-lying tissues of the thigh was higher than that obtained with conventional diathermy—the criterion for evaluating short wave machines which the Council has adopted.

In a clinic acceptable to the Council this apparatus was used for fever treatment. If the proper technique is used under the supervision of a qualified physician this device may be expected to produce hyperpyrexia. The physician should safeguard the

patient by using safety methods employed in operating rooms for major surgery.

In view of the favorable clinical performance of the machine when using the cuff electrodes, the Council on Physical Therapy voted to include the Compres Short Wave Diathermy Unit in its list of accepted apparatus.

## Council on Pharmacy and Chemistry

### HISTIDINE HYDROCHLORIDE

IN THE CONSIDERATION OF A COMMERCIAL PREPARATION OF HISTIDINE MONOHYDROCHLORIDE (LAROSTIDIN ROCHE) PROPOSED FOR USE IN THE TREATMENT OF PEPTIC ULCER, THE COUNCIL ON PHARMACY AND CHEMISTRY WAS CONFRONTED WITH THE PROBLEM OF THE THERAPEUTIC VALUE OF THE DRUG IN THIS CONDITION. AT THE REQUEST OF THE COUNCIL'S REFEREE A STUDY WAS MADE BY DR. KIRBY A. MARTIN OF THE SYMPTOMATIC AND RADIOLOGIC RESPONSE OF A SERIES OF FORTY-ONE PATIENTS TREATED WITH A SOLUTION OF HISTIDINE MONOHYDROCHLORIDE AS COMPARED WITH THAT OF FORTY PATIENTS TREATED WITH THE USUAL DIET ALKALI REGIMEN. THE RESULTS ARE REPORTED IN THE FOLLOWING PAPER, WHICH DR. MARTIN SUBMITTED FOR THE COUNCIL'S CONSIDERATION. THE COUNCIL ADOPTED DR. MARTIN'S REPORT AUTHORIZING IT FOR PUBLICATION WITH EXPRESSIONS OF HIGH APPRECIATION OF THE EXCELLENT WORK DONE BY THE INVESTIGATOR. THE COUNCIL POSTPONED FURTHER CONSIDERATION OF HISTIDINE HYDROCHLORIDE TO AWAIT ADEQUATE CLINICAL EVIDENCE OF ITS THERAPEUTIC VALUE.

PAUL NICHOLAS LEECH Secretary

### HISTIDINE HYDROCHLORIDE VERSUS DIET AND ALKALIS IN TREATMENT OF PEPTIC ULCER

THE IMMEDIATE AND LATE EFFECTS IN FORTY-ONE CASES

KIRBY A. MARTIN, M.D.  
NEW YORK

Since the use of histidine hydrochloride in the treatment of peptic ulcer was introduced by Weiss and Aron in Strasbourg in 1933,<sup>1</sup> a widespread interest has been aroused in this substance. Increasing numbers of communications have appeared in the literature, first in Europe and more recently in this country, and for the most part these reports lend great encouragement to histidine therapy as a means of treating this perplexing condition. While the etiology of peptic ulcer still remains obscure, the present high standard of diagnostic accuracy enables one to establish a fairly correct criterion by which therapeutic substances may be judged. It seemed desirable, therefore, to study the results of histidine therapy on a selected group of patients with peptic ulcer, with the intention of observing not only the immediate effects, as heretofore reported, but the sustained effects of this treatment.

The Strasbourg workers based their clinical observation on previous experimental investigation. They reasoned that, since ulcers could be so readily produced in dogs by the Mann-Williamson technique,<sup>2</sup> the cause of

From the New York Hospital and the Department of Medicine, Cornell University Medical College.

1 Weiss A. G. and Aron E. La carence en acides amines non synthétisables dans la pathogénie de l'ulcère expérimental: application au traitement de l'ulcère humain. *J. belge de gastro-entérologie* 7: 327, 1933. Weiss A. G. La carence en acides amines non synthétisables dans la pathogénie de l'ulcère expérimental: application au traitement de l'ulcère humain. *Société belge de gastro-entérologie. Bruxelles med* 13: 1037 (July 16) 1933.

2 Weiss A. G., Aron E. and Holtzmann P. Influence des injections d'acides aminés (tryptophane, histidine, lysine) sur la cicatrisation de plaies artificielles de la muqueuse gastrique. *Compt. rend. Soc. de biol.* 123: 1067, 1933. Weiss A. G. and Aron E. Role des acides aminés dans l'évolution de l'ulcère expérimental: influence de l'histidine. *Presse med* 42: 1889 (Nov. 22) 1933. Aron E. Les résultats de l'application à la clinique de ces données expérimentales. *Bruxelles med* 37: 1037 (July 16) 1933.

3 The Mann-Williamson (Mann F. C. and Williamson C. S. The Experimental Production of Peptic Ulcer. *Ann. Surg.* 77: 409 [April] 1923. Mann F. C. *Am. J. Surg.* 7: 453 [Oct.] 1929) operation has for its object the diverting of the pancreatic juice and bile together with the duodenal secretion into the terminal ileum. This is accomplished by resecting part of the duodenum, anastomosing the distal end with the terminal ileum and closing the proximal end of the loop, the continuity of the stomach and the distal duodenal loop being restored by an end-to-end anastomosis.



such ulcers might be the loss of some vital substance produced in the duodenum of that animal. Since some of the amino acids are normally produced in the duodenum by protein cleavage, they thought that an amino acid deficiency might occur in peptic ulcer and that erosion and ulceration might result from the acid chyme when the cells of the gastro-enteric walls were deficient in these vital substances. They decided to investigate the effects of some of the amino acids as a substitution therapy with the hope of preventing ulcers or healing those already produced.

Weiss and Aron carried out the Mann-Williamson technique on five dogs, two were kept as controls and the remaining three animals received daily intramuscular injections of histidine and tryptophan. (Later it was stated that tryptophan was without effect.) The control animals lost weight had blood in the feces, and developed a severe anemia. One was killed at the end of three weeks and "four small ulcers were found." One died of a perforated jejunal ulcer in the sixth week. The three treated animals lost weight and were anemic, but no blood was found in the feces. The treated animals were killed, one at five weeks, one at six weeks, and one at ten weeks after the experiments were started. "No ulcer was found in any of these three animals. As a result of further experimentation it was pointed out that histidine treated animals later died of emaciation."

These workers concluded from their observations that tryptophan and histidine would prevent ulcer formation, although the animals became anemic and cachectic, and developed profuse diarrhea but without melena. They explained the beneficial effects of histidine as providing a substance that "better the trophism of the gastro-enteric wall." They immediately tried either histidine or histidine and tryptophan on a few patients with peptic ulcer. They report that in all the cases the symptoms disappeared after a few injections but that in many of them the radiologic signs persisted. A preliminary report of a further series showed "rapid disappearance of vomiting and pain, intestinal hemorrhage rapidly checked, little or no effect on gastric acidity, x-ray changes variable—recent ulcers disappeared, the callous ones persisted, and the periodic crises were aborted." More recently Aron<sup>4</sup> has reported similar immediate effects in forty-two cases.

Fontes and Bauer<sup>5</sup> repeated the experimental work of Weiss and Aron but, instead of employing the parenteral method, gave the histidine orally in doses of from 0.25 to 0.5 Gm daily. The procedure was carried out on 100 dogs and the formation of ulcer was prevented in 30 per cent. When ulcer did occur it was much smaller than that present in the untreated animals. They were unable to find any relation between the quantity of histidine ingested daily and the non-appearance of the ulcer. However, when they doubled the quantity of histidine ingested the length of survival was almost doubled. The animals in which no ulcer was found eventually died. These authors questioned histidine as being the sole factor in the nonappearance of experimental ulcer.

Blum<sup>6</sup> was among the first to report the clinical benefits derived from histidine. He kept his patients on normal diets and found that the acute symptoms

promptly improved. Lenormand,<sup>7</sup> Richards,<sup>8</sup> Stolz,<sup>9</sup> Bogendoerfer,<sup>10</sup> Hessel<sup>11</sup> and others have similarly reported the initial benefits observed from this therapy, but the number of cases studied was small and the follow up insufficient. Bulmer<sup>12</sup> reported fifty-two unselected cases of peptic ulcer treated with histidine. All but three of the patients were kept ambulatory. His immediate results were (1) thirty symptomatic cures with disappearance of the abnormal roentgen observation, (2) ten symptomatic cures with persistence of some roentgen abnormality, and (3) twelve failures. No appreciable change in gastric acidity was noted. Later, three patients relapsed. Cases of gastric ulcer seemed to him to be more amenable to this treatment than did those of duodenal ulcer. A few of his patients were followed as long as ten months.

In this country, Volini and McLaughlin<sup>13</sup> have made a preliminary report on twenty-one patients with peptic ulcer who were treated with histidine. All their patients were kept ambulatory and on "liberal diets" but were detailed at duties in the hospital. These investigators reported rapid clinical improvement, characterized by the relief of pain, vomiting, hypersecretion and gastric retention. Appetite and weight increase was noted. Eads<sup>14</sup> made a preliminary report on thirty-five cases of peptic ulcer (thirty duodenal and five gastric) treated with histidine. All his patients were kept ambulatory and on "slightly modified diets." His results were clinical and x-ray evidence of immediate healing in six cases, the same evidences of improvement but less rapid in eight cases, amelioration of symptoms with x-ray examinations unchanged in nine cases, and no improvement in twelve cases. The author reports less beneficial effect than is recorded in previous papers. His observations extended over six months.

Rafsky<sup>15</sup> reported twenty-four duodenal, one marginal and one gastric ulcer treated with histidine. Most of his patients were confined to bed. The diet varied from a "Sippy to a regular diet." He observed marked diminution of acidity. Symptomatic relief was obtained during treatment in nineteen of his patients, all of whom remained symptom free during his observation extending over four months. He did not estimate what effect bed rest and change of diets might have had on his patients.

#### HISTIDINE

Histidine was discovered by Kossel in 1896 among the decomposition products of the protamine of sturgeon testes, but it was not until 1904 that its structure was definitely determined by Pauly Wendhouse and Knopp.<sup>16</sup>

Histidine is a constituent of most of the simple proteins and may be obtained from a great variety of foodstuffs most important of which are beef, eggs, fish

4 Aron F. Treatment of Gastroduodenal Ulcer by Histidine. *Pre e med* 43 1195 (July 27) 1935.

5 Fontes G and Bauer H. Action de l'ingestion d'histidine sur l'ulcère expérimental du chien. *Compt rend Soc de biol* 115 69 1935.

6 Blum P. Orientation nouvelle de la pathogenie de l'ulcère expérimental gastrique et de la thérapeutique de l'ulcère humain. *Bull gen de therap* 184 25 (June) 1933.

7 Lenormand J. Acidotherapie aminee et epigastralgies de cause non ulcereuse (action de l'histidine). *Gaz d hop* 107 255 (Feb 21) 1934.

8 Richards W D. Resume of Surgery. *The Hahnemannian Monthly* 70 191 1935.

9 Stolz A. Traitement de l'ulcus gastroduodenal par l'histidine. *Bull mem Soc nat de chir* 61 245 (Feb 23) 1935.

10 Bogendoerfer L. Neuartige Ulku behandlung mit einem Histidin praeparat. *Munchen med Wchnschr* 81 1270 (Aug 17) 1934.

11 Hessel Georg. Die Behandlung des Magen und Zwelfingerdarm geschwuers mit Histidin. *Munchen med Wchn chr* 81 1890 (Dec 6) 1934.

12 Bulmer Ernst. The Histidine Treatment of Peptic Ulcer with a Note on Fifty Two Cases. *Lancet* 2 1276 (Dec 8) 1934.

13 Volini I F and McLaughlin R F. The Histidine Monohydrochloride Therapy of Gastroduodenal Ulcer. A Preliminary Report. *VI Rec* 141 364 (April 17) 1935.

14 Eads J T. Histidine in the Treatment of Peptic Ulcer. A Preliminary Report. *Am J Digest Di & Nutrition* 2 426 (Sept) 1935.

15 Rafsky H A. Injection Treatment of Peptic Ulcer with Special Reference to the Use of Histidine Monohydrochloride. *VI Rec* 142 289 (Sept 18) 1935.

16 Knorrhill F P. The Physiology of the Amino Acid. New Haven Conn. Yale University Press 1916.

and milk. It is found in much larger quantities in blood and it is from this source that it is derived commercially.

It seems to be a fairly established fact that certain of the amino acids—for example, tryptophan and histidine—are indispensable for the maintenance of a normal nutrition. The animal organism does not possess the ability to synthesize histidine, nor can another amino acid replace it. On the other hand, there is no convincing evidence from feeding experiments that a deficiency of this substance can be produced in animals. The presence of histidine in foodstuffs is so universal that the exclusion of histidine-producing foods would make the diet incomplete in other indispensable dietary factors.<sup>17</sup>

Since histidine-containing proteins are always present in a normal diet, it follows that histidine must necessarily be a normal constituent of the intestinal contents. The absorption of the amino acids, either in their simplest form or as a more complex structure, is regarded as a normal process of digestion.

#### METHOD EMPLOYED IN THE PRESENT STUDY

Eighty-one patients with active symptoms of peptic ulcer and positive radiologic evidence were chosen from

TABLE 1—Immediate and Late Effects from Histidine Treatment in Peptic Ulcer Forty-One Cases

	Symptom Free			Crater or Persistent Symptoms		
	Ulcer Healed (X Ray)	Ulcer Not Healed (X Ray)	Total Cases	Before Treatment	After Treatment	Persistent or Recurring Symptoms
Immediate results at completion of injections	14	12	30	33	22	11
Late results from 6 to 12 months after operation	10	3	13*			26
						4

\* Trace lost of two of these patient

our clinic for this study. They were allotted impartially to one of two groups: (1) the histidine group and (2) the diet-alkali or control group.

**Selection of Patients.**—We considered the selection of patients of the utmost importance. The requirements of the study did not permit the selection of more than one in ten of the ulcer patients who came to the clinic. The patient's close residence to the clinic, his intelligence and cooperation, and his willingness to undertake such a time-consuming procedure were important factors. All the eighty-one patients were kept ambulatory and at their usual work, with the exception of three in the histidine series who were hospitalized because of the acuteness of their symptoms at the beginning of their treatment. Fairly young individuals in whom there were no concomitant organic diseases to obscure the clinical picture were given preference. All the cases selected were confirmed radiographically and in most instances a crater was visualized. More patients with duodenal ulcer than gastric ulcer were included because of the greater frequency and the chronicity of the former and the tendency of the latter to disappear, leaving no trace, regardless of the therapy used. No attempt was made to limit the ratio of the female to the male patients. The evidence presented suggested that the duration of the ulcers in this group varied from one to seven years.

It is unusual in a large clinic to find a patient seeking relief for his ulcer symptoms who does not give a history indicating that his ulcer has existed for at least a year and in most instances for several years. It is also the rule rather than the exception that these patients have had one or more "medical cures" even though a positive diagnosis may not have been made before coming under our observation. Chronicity and rhythmicity are the rule and not the exception.

I do not wish to convey the impression that the patients chosen for this study were those with deep calloused ulcers, amenable only to surgical intervention. On the contrary, they were a medium young group with no demonstrable disease other than duodenal or gastric ulcers, and with acute symptoms that would be expected to react favorably to the usual diet-alkali regimen.

**Management of Patients.**—Patients of both groups were examined and treated in the routine way to eliminate as far as possible extrapsychogenic factors. They were examined by the various members of the staff; the daily injections were given by the nursing staff to those in the histidine group; the radiographic examinations were carried out by the regular staff of that department without knowledge as to which patients were included in this study.

#### HISTIDINE SERIES

There were forty-one patients in this group, thirty-two men and nine women. Thirty-eight had duodenal ulcer, two gastric ulcer and one marginal ulcer. Their ages ranged from 18 to 62 years, averaging 37 years. The histidine<sup>18</sup> (4 per cent aqueous, isotonic histidine hydrochloride) was given intramuscularly in 5 cc doses daily (omitting Sundays) for from twenty to twenty-four days. The diet and medication were those on which the patients had previously been placed, in our clinic, elsewhere or by themselves. In most instances they were found to be on a high calory, low residual diet with little or no medication. It was deemed advisable to make no changes, as far as possible, in their diet or medication while they were under observation. Six of these patients were first given 5 cc of physiologic solution of sodium chloride for six days and then switched to histidine injections without their knowledge of the change.

**Results.**—The immediate and sustained effect of histidine on this group can best be demonstrated in table 1.

**At the Completion of the Injection.**—Thirteen of the forty-one cases showed a decreased gastric acidity, twenty showed an increased gastric acidity, and one showed no change in gastric acidity. For one reason or another, this procedure could not be carried out on seven of the forty-one patients. Twenty-six of the patients gained weight, five lost weight and ten showed no change. The gain in weight was in most instances in direct ratio to the relief of symptoms and the increased caloric intake.

The relief of symptoms, when it occurred, usually appeared early in the treatment, at about the fifth to the seventh injection. It was not uncommon for the patient to experience a moderate increase of gastric distress after the injections had been started and just before obtaining relief from symptoms. No other local or systemic reaction was noted. Three of the six

<sup>17</sup> Mitchell, H. H. and Hamilton, T. S. *The Biochemistry of the Amino Acids*. New York: Chemical Catalog Company, 1929.

<sup>18</sup> Twenty-eight patients were treated with Larostidin (Hoffmann-LaRoche) and thirteen with a 4 per cent aqueous isotonic solution of histidine hydrochloride prepared especially for this investigation. There was no apparent difference in response to these two preparations.

patients receiving saline injections became symptom free before the histidine was started

In thirty-three of the forty-one cases there was radiologic evidence of a crater before treatment, in twenty-two, the evidence persisted after treatment. In one case a crater was demonstrated after treatment when it had not been demonstrated before. Fourteen were symptom free and showed radiologic evidence of healed ulcer. Twelve were symptom free and showed radiologically that the ulcer was not healed. Eleven had persistent symptoms and gave radiologic evidence of healed ulcer. Four of these eleven patients have since been operated on, one for a marginal ulcer, one for a medium sized gastric ulcer, and two for duodenal ulcer, of the latter, one patient had persistent pain and one repeated hemorrhages. Two patients have refused operation that was advised because of the radiologic and clinical evidence. The five remaining patients showed nothing unusual in the radiologic or physical examination. However, two of them have been unable to solve their matrimonial difficulties, another is a young ambitious actor who has been unemployed for two years and has had recurring attacks of pain, a fourth, a man aged 56, who before 1929 had an excellent income, now finds himself unable to make adjustments to a meager wage, and the last, a young man, an electrician, unemployed for one and a half

since been operated on. The time that has elapsed since these patients were placed on a five feeding alkaline ambulatory regimen varies from ten months to one year. Up to the present time sixteen have remained symptom free, whereas twenty-four have had one or more relapses.

#### COMMENT

The apparent high response to a regimen that permits a patient with acute peptic ulcer to follow a liberal diet and remain at work appears very promising indeed. But, on further observation of these patients, not only does hope vanish but one can see the fallacies on which some of these preliminary deductions were based.

The work of Mann and Williamson has been confirmed and is now well recognized. It has contributed toward the understanding of the production and healing of a type of chronic ulcer. These observers believe that chronic ulcers in dogs are identical with chronic peptic ulcer in man. They point out that the production of chronic ulcers in dogs is the result of two significant factors, the chemical and the mechanical. Further, they demonstrate that these ulcers will heal readily if protected from the gastric contents.

Since the experimental work of Weiss and Aron, on which histidine therapy is based, was carried out on the Mann-Williamson animal, it would appear that their observations were correct but were insufficient to support their conclusions. It is not clear that an amino acid deficiency existed in their animals, nor can one be sure that ulcers ever existed or were prevented in the three animals studied.

It must also be admitted that the normal physiology of the animal was pretty well deranged by the Mann-Williamson operation. Not only does derangement prevent the alkaline duodenal secretions from protecting, by neutralization, the tissue adjacent to the stomach but in this instance the adjacent tissue (jejunal) is unaccustomed to receiving such secretion. When the jejunum of these dogs is exposed, without the protection of a normal cellular amino acid content to a continuous outpouring of acid chyme, it is hardly to be expected that ulcer will not develop. Nor could one expect to empower these cells with a function never intended by supplying this supposedly deficient element.

It has been shown by Matthews and Dragstedt<sup>19</sup> that the more unaccustomed a tissue is to receiving the gastric secretion, the higher is the incidence of ulcer. These workers produced experimentally a counterpart of the ulcer of Meckel's diverticulum in man by implanting a small isolated pouch of gastric tissue in the small intestine of animals at different distances from the duodenum. When the gastric tissue was implanted in the jejunum ulcer resulted just distally to the implant in 85 per cent of the instances, but when it was implanted in the ileum ulcers resulted in 100 per cent of the instances. Had Weiss and Aron supported their observations by a series of experiments using this technique and proved that ulcers thus produced could be healed or prevented by supplying the deficient amino acid in question it would have been a more convincing piece of evidence.

Fontes and Bauer confirmed the work of Weiss and Aron but gave histidine by mouth instead of intramuscularly. This would suggest that histidine as such is absorbed readily from the intestinal tract. Certainly it is abundant in the diet of man, since it is a normal derivative of proteolysis metabolism. What set of circum-

TABLE 2—Immediate and Late Effect from the Diet-Alkali Ambulatory Regimen in Peptic Ulcer Forty Cases

	Symptom Free	Crater Before Treatment	Persistent or Recurring Symptoms
Immediate results (at end of 4 weeks)	31	30	9
Late results from 10 to 12 months	16		24
Patients operated on			3

years, lost a 6 year old daughter with septicemia in 1932 and a second, aged 4 years, following an acute mastoiditis in 1934.

*Follow Up*—The period of time that has elapsed since the completion of the injections varies from six months to one year. Thirty-two patients have been under observation over ten months. Of the thirty patients rendered symptom free by this regimen, there are at this time thirteen still symptom free. Twenty-six patients have had one or more relapses, and two patients have been lost.

It is interesting to note in which group the largest number of relapses occurred. Of the twelve cases presenting a persistent crater but symptom free, only three have remained asymptomatic, whereas of the fourteen cases rendered symptom free and in which no crater could be demonstrated after treatment, ten have remained asymptomatic.

#### CONTROL SERIES DIET ALKALI REGIMEN

There were forty patients in the control series: thirty-six men and four women. Thirty-seven had duodenal ulcers and three gastric ulcers. A crater was demonstrated in thirty-five of the forty cases. The ages of this group ranged from 19 to 64, averaging 39 years. They received the alkali therapy and ambulatory diet of five feedings a day which is routine in our outpatient clinic as well as in many clinics elsewhere.

*Results*—At the end of the first month of treatment or period corresponding to the completion of the histidine treated group, thirty-one of these patients were symptom free. Three of the remaining patients have

<sup>19</sup> Matthews W. B. and Dragstedt L. R. The Etiology of Gastric and Duodenal Ulcer. Surg. Gynec. & Obst. 55: 263 (Sept.) 1932.

stances would lead to a deficiency of this substance would be difficult to understand. It is my impression that a careful survey would show that the ulcer patient receives a diet better both in quality and in quantity than the average American adult, granting, in advance, that his habits of taking food are usually faulty.

Another explanation of the action of histidine would seem to fit the facts more closely. Evidence is available in the literature to support the contention that the eroded area of an ulcer may need but little protection not only to relieve the acute symptoms but also to promote healing. Gastric mucin has been employed with some justification as a therapeutic agent in this connection. It probably exerts a protective effect on the membranes with which it comes in contact by virtue of its viscous nature and perhaps because of its buffer action, and recent reports<sup>20</sup> indicate that a symptomatic relief is obtained in from 63 to 93 per cent of the cases studied. The palliative effects of histidine in the treatment of hay fever have been reported by Lenormand.<sup>21</sup> He observed an increased flow of nasal mucus following its injection. The hypersensitive membranes, he states, are protected from the pollens. It is conceivable that the gastric mucus in a patient with a peptic ulcer might be stimulated in a similar way, thus giving relief of gastric symptoms similar to that obtained from gastric mucin. The work of Manginelli<sup>22</sup> tends to support this contention. He observed a better "analgesic effect" in acute ulcer pain when the histidine was given just before food was taken.

The many strange and unexplained conditions under which the acute symptoms of ulcer may subside are common experience. Fractional analysis made at the time of acute symptoms may show the gastric acidity to be high or low. Following the taking of a little food or soda, which usually gives immediate relief, the gastric acidity might be slightly lowered and then rise to a higher level than before. The relief from pain that follows gastro-enterostomy or the free bleeding from an ulcer is not easily explained. Remissions of symptoms sometimes occur in the absence of treatment or from a placebo of saline solution, as was demonstrated in this work in a few instances. A patient on a vacation may, and frequently does, become asymptomatic. The discouraging feature is that the symptoms usually recur similarly in the same strange manner. These facts are pointed out to make clear that the relief of symptoms is not a specific action of histidine, and the subsidence of symptoms alone cannot be taken as a criterion that the ulcer is healed.

Subsidence of acute symptoms following a strict Sippy regimen is so common that it is frequently regarded as a diagnostic test of ulcer. A recent report by Emery and Monroe<sup>23</sup> based on experience in 1,435 cases stated that their results were satisfactory with the "complete Sippy regimen" in 90 per cent of the cases, with the "partial Sippy" in 87 per cent, and with the "five feedings plus alkali schedule" in 82 per cent. These observers drew the conclusion "that none of the present methods of treatment do more than assist in the induction of remission, no matter how strict the medical schedule or how radical the operation."

The results in our histidine series are not quite as good as those in the control series on the less drastic ambulatory, diet-alkali regimen: 73.2 per cent and 78.4 per cent, respectively, showed symptomatic relief. The time consumed and the expense to the patient are much greater with histidine treatment than with the diet-alkali therapy. The frequency of relapses in both series suggests that histidine therapy in peptic ulcer is but another means of inducing a remission. In its favor it may be said that histidine appears to be harmless in the quantity administered, although Newburgh and Marsh<sup>24</sup> have shown that under certain conditions it may have a toxic effect on the kidney.

#### SUMMARY AND CONCLUSIONS

A series of forty-one selected patients with acute symptoms and radiologic signs of active peptic ulcer were treated with intramuscular injections of histidine hydrochloride (from twenty to twenty-four injections each). A crater was demonstrated radiographically in thirty of the forty-one patients. The previous diets of the patients were not changed and all but three of them were kept ambulatory. The immediate response to this therapy was fairly uniform and prompt. Thirty of the patients were relieved of their symptoms at or before the conclusion of the treatment. Fourteen of this asymptomatic group showed radiologic evidence of a healed ulcer, whereas twelve showed a crater still present. Eleven showed no improvement symptomatically or radiographically.

The period of observation varied from six months to one year; thirty-two patients have been under observation for ten months. At the present time thirteen are still symptom free and twenty-six have had one or more relapses. Of the twelve rendered symptom free but in whom a crater persisted, only three have remained symptom free, whereas of the fourteen rendered symptom free and in whom no crater could be demonstrated after treatment, ten have remained asymptomatic.

A second or control group of forty selected patients with acute symptoms and radiologic signs of active peptic ulcer (a crater was demonstrated radiologically in thirty-five) were treated with the usual ambulatory, diet-alkali ulcer regimen. At the end of the first four weeks of treatment, or period corresponding to the completion of treatment in the histidine group, thirty-one were symptom free. The period of observations varied from ten months to one year. At the present time sixteen have remained symptom free, whereas twenty-four have had one or more relapses. These figures correspond fairly closely to those in the literature.

The symptomatic and radiologic response of the patients in the histidine series was not quite as good as that in the diet-alkali regimen series, in either the initial or the sustained effects.

Symptomatic relief with a persistent crater is almost equally common to the two groups, as is a relapse of symptoms. The incidence of relapse is highest in the group rendered asymptomatic but with persistent crater.

Demonstration of a crater establishes a criterion by which a therapeutic substance may be tested, and it also affords a prognostic sign following any form of ulcer therapy.

The clinical improvement succeeding histidine hydrochloride therapy in acute peptic ulcer appears to be symptomatic and transient.

20 Fogelson, S. J. Gastric Mucin Treatment for Peptic Ulcer. A Report Based on Questionnaires. *Arch. Int. Med.* 55: 7 (Jan.) 1935.  
Gastric Mucin. Preliminary Report of the Council on Pharmacy and Chemistry. *J. A. M. A.* 102: 767 (March 10) 1934.

21 Lenormand, J. Amino Acids in Treatment of Hay Fever. *Presse med.* 41: 1137 (July 19) 1933.

22 Manginelli, L. Histidine in Gastric Therapeutics. *Arch. d. mal. de l'app. digestif* 25: 460 (May) 1935.

23 Emery, E. S. and Monroe, R. T. Peptic Ulcer. Nature and Treatment. Based on a Study of 1,435 Cases. *Arch. Int. Med.* 55: 271 (Feb.) 1935.

24 Newburgh and Marsh cited by Mitchell and Hamilton.<sup>11</sup>

Chronicity and rhythmicity is a characteristic feature of peptic ulcer. Histidine appears to have no effect other than to alter the rhythm slightly.

Histidine hydrochloride showed no constant effect on the hydrochloric acid secretion in our series.

Histidine hydrochloride in the quantity used appears to be harmless.

The therapeutic indications for histidine in the treatment of peptic ulcer are necessarily limited. The extravagant claims that have been made for this substance are unwarranted.

115 East Sixty-First Street

## REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
PAUL NICHOLAS LEECH, Secretary

### LAROSTIDIN 'ROCHE' NOT ACCEPTABLE FOR N N R

In the latter part of 1934 and in 1935 the medical profession was deluged with propaganda for 'Unquestionably the most notable advance in the medical treatment of Gastric and Duodenal Ulcer,' Larostidin 'Roche.' According to the advertising, this is a 4 per cent solution of *laevo*-histidine-monohydrochloride in an isotonic medium.

Hoffmann-La Roche, Inc., advanced such claims as

After approximately 24 injections radiologic findings become negative and the patient may be discharged from treatment.

As injection treatment which means  
no surgical intervention  
no hospitalization  
*except possibly in hemorrhage cases*  
no unusual rigid dietary regimen  
no interference with everyday routine  
prompt relief of symptoms

Larostidin Roche affords the physician a new means of combating peptic ulcer—a treatment which for speed and effectiveness surpasses the usual palliative measures.

These claims are selected at random from the large volume of advertising that has accumulated in the Council office.

Although there were some favorable reports, with which some of the claims were consonant, the Council questioned them and initiated a series of experiments to determine the usefulness of histidine hydrochloride and Larostidin Roche in treating gastric and duodenal ulcer as compared with the diet-alkali regimen. The results of this investigation are reported in this issue of THE JOURNAL (Martin K. A. "Histidine versus Diet and Alkalis in Treatment of Peptic Ulcer," p. 1468). Of the forty-one patients who were the subject of Martin's report as treated by the injection method twenty-eight were given Larostidin and the remaining thirteen received a specially prepared solution of histidine monohydrochloride and sodium chloride comparable with the composition of Larostidin Roche. No difference in response to these two preparations was noted by the investigator. Controls with diet-alkali series were also used. The investigator reported that the symptomatic and radiologic response of forty-one patients in the injection series was not quite so good as that of the forty control patients in the diet-alkali series, in either the initial or the sustained effects.

A careful reading of the results of the investigation indicates that many of the Hoffmann-La Roche claims for Larostidin are enthusiastic beyond the bounds of permissible optimism and are unsupported—and even contradicted—by this series of experiments. As a result of its consideration of the paper of Martin and others however the Council concluded that although there is at present insufficient clinical evidence for its evaluation histidine hydrochloride shows promise of possible usefulness in the treatment of gastric and duodenal ulcer. The Council sponsored publication of Dr. Martin's paper to serve in the manner of a preliminary report.

The Council declared Larostidin (Hoffmann-La Roche, Inc.) not acceptable for New and Nonofficial Remedies, because it is marketed with unwarranted therapeutic claims and voted to postpone further consideration of histidine monohydrochloride until adequate clinical evidence of its therapeutic usefulness is available.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



FRANKLIN C. BING, Secretary

### CELLU BRAND TIPS OF ASPARAGUS, WATER PACKED

*Distributor*—Chicago Dietetic Supply House, Inc., Chicago

*Packer*—L. H. Schlecht, Rossville, Ill.

*Description*—Canned green asparagus tips packed in water.

*Manufacture*—Selected green asparagus tips are harvested at the proper degree of maturity, cut to standard lengths, sorted by hand for size, cleaned by spraying with water under pressure, blanched, cooled and hand packed in cans. The cans are filled with boiling water, sealed and processed.

*Analysis* (submitted by distributor)—

	per cent
Moisture	93.8
Total solids	6.2
Ash	0.9
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	1.7
Crude fiber	0.6
Starch (diastase method)	2.2
Carbohydrates other than crude fiber (by difference)	2.9

*Calories*—0.2 per gram, 6 per ounce.

*Claims of Manufacturer*—Choice quality green asparagus tips packed without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

### TRU-LI-PURE BRAND PASTEURIZED HOMOGENIZED MILK

*Manufacturer*—Nashville Pure Milk Company, Nashville, Tenn.

*Description*—Bottled, pasteurized homogenized milk.

*Manufacture*—Milk obtained from tuberculin tested cows under government and company inspection is regularly tested for bacteria, sediment, nonfat solids, acidity and temperature. Milk that passes the test is filtered, heated to 54 C, homogenized at 3,000 pounds pressure, pasteurized by the standard holding method (62-63 C for thirty minutes), cooled automatically, filled into bottles and capped.

*Analysis*—Standardized to contain not less than 4.1 per cent of milk-fat.

*Claims of Manufacturer*—The cream does not separate. The curd formed in the stomach is softer and more readily digestible than that from unhomogenized milk.

### CARNATION COOK BOOK

*Sponsor*—Carnation Company, Milwaukee.

An extensively illustrated Cook Book prepared by the Home Economics Department of the Carnation Company and the Erwin Wasey & Company advertising agency, Chicago. Contains brief introductory discussion of the composition, nutritive value, digestibility and use in cooking and in children's and infants' diets of Carnation milk. Special menus and recipes for use in diets of older children and invalids. Menus for special occasions and recipes for typical national dishes are included.

HEINZ BRAND STRAINED APRICOTS  
AND APPLESAUCE*Manufacturer*—H J Heinz Company, Pittsburgh*Description*—Canned mixture of strained apricots and apples retaining in high degree the natural vitamins and minerals*Manufacture*—Selected fully ripened apricots are sorted, pitted trimmed and steamed. Well ripened apples are mechanically peeled, hand trimmed cut and steamed. In an atmosphere of steam, two parts of apricots and one part of apples by weight are mixed, comminuted, strained—sugar may be added to maintain uniform sweetness—vacuumized and filled into special enamel lined cans, which are sealed under vacuum and processed

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	82.8
Total solids	17.2
Ash	0.6
Fat (ether extract)	0.1
Protein (N × 6.25)	0.6
Reducing sugars as invert sugar	8.9
Total sugars as invert sugar	12.7
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	14.4
Titrateable acidity as citric acid	0.8
Calcium (Ca)	0.01
Phosphorus (P)	0.02
Iron (Fe)	0.0013
Copper (Cu)	0.0001

*Calories*—0.6 per gram 17 per ounce*Vitamins*—Vitamin biologic assay shows 360 Sherman units (504 International units) of vitamin A per ounce 6 Sherman units of vitamin B per ounce, 5 Sherman-Bourquin units of vitamin G per ounce

Chemical assay shows 25 International units of vitamin C per ounce

*Claims of Manufacturer*—For table use, but especially intended for infants, children and convalescentsROBERTS BRAND UNSWEETENED  
EVAPORATED MILK*Manufacturer*—Roberts Dairy Company, Omaha,*Description*—Unsweetened, sterilized evaporated milk*Manufacture*—Milk from company inspected farms, tested daily for flavor, acidity, sediment and bacterial activity, is pre-heated evaporated under vacuum, filtered, homogenized, cooled to 6 C, standardized to 7.8 per cent milk-fat and 26.2 per cent total milk solids, filled into cans, sealed and sterilized

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	73.8
Total solids	26.2
Ash	1.1
Fat (ether extract)	7.8
Protein (N × 6.38)	6.9
Lactose (by difference)	10.4

*Calories*—1.4 per gram 40 per ounce*Claims of Manufacturer*—See announcement on the advertising of the Evaporated Milk Association (THE JOURNAL Dec 19, 1931, p 1890)ADVERTISING LEAFLET SIMPLIFIED  
INFANT FEEDING'

(FOR PHYSICIANS ONLY)

*Sponsor*—Carnation Company, Milwaukee*Description*—Advertising leaflet prepared by Erwin Wasey & Company, advertising agency, for the Carnation Company for distribution to physicians. Contains discussion of advantages of evaporated milk for infant feeding, methods of irradiation chemical composition of irradiated Carnation milk, antirachitic potency of irradiated milk, effect of the processes of evaporation and irradiation on other vitamins of milk, chemical changes resulting from evaporation and claims accepted by the Committee on Foods for irradiated evaporated milks. Specific directions for feeding irradiated Carnation milk to normal infants and to infants presenting special feeding problems are included. Future editions of the booklet will contain statements of vitamin D unitage and cod liver oil equivalence per fluidounce of irradiated Carnation milk.

## ARIZ-SWEET BRAND GRAPEFRUIT JUICE

*Manufacturer*—Ariz-Sweet Grapefruit Growers, Ltd, Peoria, Ariz*Description*—Canned Arizona grapefruit juice, retaining in high degree the original vitamin C content*Manufacture*—Tree-ripened fruit, picked at a definite stage of maturity, under laboratory control, is cleaned, sorted, thoroughly washed, again sorted, and automatically halved. The juice, extracted by light manual pressure on grapefruit halves in contact with revolving burrs, is strained, heated to 32 C, deaerated under vacuum, flash pasteurized, filled into cans and vacuum sealed

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	89.3
Total solids	10.7
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	0.5
Crude fiber	0.1
Reducing sugars as invert sugar	6.3
Sucrose	1.0
Carbohydrates other than crude fiber (by difference)	9.5
Acidity as citric acid	1.3

*Calories*—0.4 per gram 11 per ounce*Vitamins*—Chemical titration shows an average cevitic acid (ascorbic acid) content of 0.4 mg per cubic centimeter, 11.8 mg per fluidounce, equivalent to approximately 17 Sherman La Mer units of vitamin C per fluidounce. The analysis shows practically no reduction of vitamin C in the canned product*Claims of Manufacturer*—Intended for all dietary and table uses of grapefruit juices

## HORMEL BRAND CORNED BEEF HASH

*Manufacturer*—Geo A Hormel & Company, Austin, Minn*Description*—Canned corned beef hash, cooked potatoes, corned beef, and onion, seasoned with salt, sugar and pepper*Manufacture*—Fresh chuck beef, United States inspected and passed by the Department of Agriculture, is trimmed of gristle and excess fat, cut in small pieces, seasoned with salt and sugar, mixed with saltpeter and nitrite to preserve the red color of the meat, and cured in salt brine. Saltpeter and nitrite are largely removed when the cured meat is later drained, covered with hot water and boiled for five minutes, again drained and ground. Partially cooked, diced potatoes (mechanically peeled and hand eyed) and peeled, washed and ground white onions are added in formula proportions. The mixture is heated automatically packed in cans, sealed and heat processed

<i>Analysis</i> (submitted by manufacturer) —	per cent
Moisture	68.3
Total solids	31.7
Ash	2.1
Fat (ether extract)	10.6
Protein (N × 6.25)	10.1
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	8.8

*Calories*—1.7 per gram 48 per ounceCELLU BRAND GREEN STRINGLESS  
BEANS, WATER PACKED*Distributor*—Chicago Dietetic Supply House, Inc, Chicago*Packer*—Eugene Fruit Growers Association, Eugene, Ore*Description*—Canned green stringless beans, packed in water*Manufacture*—Selected green stringless beans, harvested at the proper degree of maturity are mechanically snipped, inspected, graded for size, blanched and filled into cans by hand. The cans are filled with water, heated, sealed and processed

<i>Analysis</i> (submitted by distributor) —	per cent
Moisture	95.0
Total solids	5.0
Ash	0.8
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Crude fiber	0.5
Starch (diastase method)	1.9
Carbohydrates other than crude fiber (by difference)	2.6

*Calories*—0.2 per gram 6 per ounce*Claims of Manufacturer*—Choice quality green stringless beans packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition



# MEDICAL LICENSURE STATISTICS FOR 1935

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The report presented herewith for the year 1935 deals with statistics regarding (a) medical licensing boards of the United States, including the District of Columbia and territories and possessions of the United States, (b) boards of examiners in the basic sciences, and (c) the National Board of Medical Examiners. Official reports have been contributed by the officers of the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands, the homeopathic examining boards of Arkansas, Connecticut, Delaware, Louisiana and Maryland, the eclectic board in Arkansas, the ten basic science boards (Arizona, Arkansas, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin), and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana and the eclectic board in Arkansas did not license any one during the year. Acknowledgment is tendered the officers of the foregoing boards for their ready cooperation and the complete reports they have furnished.

The data supplied were also entered in the biographic file of physicians and others maintained by the American Medical Association, thus serving a dual purpose. Many state licensing boards get in touch with the American Medical Association for verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all licensing boards.

The tables showing medical licensing board results include figures regarding the number of candidates for medical licensure in 1935, the number licensed and the number added to the profession.

## LICENTIATES

The first table shown contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 7,887 licenses issued, 5,707 on the basis of examination and 2,180 by endorsement of credentials. In several states (table 7) the internship is a requisite for practice, but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. Licenses are also withheld for lack of citizenship or minor technicalities. The figures, therefore, for those licensed after examination include many who were examined in 1934 and even a few in previous years. New York issued the largest number of licenses, 1,274, Illinois and Pennsylvania each issued 525, California 472, Ohio 416, Texas 319 and New Jersey 318. A comparison with similar figures for 1934 indicates that New York issued sixteen fewer licenses and New Jersey fourteen fewer in 1935, while Illinois licensed 67 more and Pennsylvania 5, California 54, Ohio 19 and Texas 48 more.

Four states issued between 200 and 300 licenses and fourteen between 100 and 200. Twenty-four states, Alaska, Hawaii, Puerto Rico and the Virgin Islands, licensed less than 100. Only one was licensed by examination in New Mexico. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse

diplomates of the National Board of Medical Examiners. The total number licensed, 7,887, was 157 more than in 1934. This figure, however, does not represent 7,887 individuals since several have been licensed in more than one state during the year. Nor does it represent additions to the medical profession at large since the 2,180 licensed by endorsement, with the exception of those licensed in New York on the basis of foreign credentials, have migrated from other states. Table 5 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TABLE 1—*Licentiates—1935*

	Licensed on Basis of		
	Examination	Reciprocity and Endorsement	Total
Alabama	37	26	63
Arizona	5	17	22
Arkansas	42	19	61
California	329	143	472
Colorado	59	4	63
Connecticut	50	34	84
Delaware	13	3	16
District of Columbia	43	37	80
Florida	130	0	130
Georgia	68	10	78
Idaho	8	13	21
Illinois	424	101	525
Indiana	101	44	145
Iowa	97	39	136
Kansas	94	34	128
Kentucky	72	38	110
Louisiana	112	6	118
Maine	45	16	61
Maryland	144	30	174
Massachusetts	100	68	168
Michigan	227	57	284
Minnesota	173	14	187
Mississippi	31	17	48
Missouri	196	51	247
Montana	8	18	26
Nebraska	90	12	102
Nevada	3	15	18
New Hampshire	4	34	38
New Jersey	182	136	318
New Mexico	1	28	29
New York	879	395	1,274
North Carolina	64	48	112
North Dakota	14	9	23
Ohio	284	132	416
Oklahoma	39	28	67
Oregon	50	11	61
Pennsylvania	464	61	525
Rhode Island	50	1	51
South Carolina	49	7	56
South Dakota	20	10	30
Tennessee	178	24	202
Texas	188	131	319
Utah	20	13	33
Vermont	19	18	37
Virginia	101	48	153
Washington	42	42	84
West Virginia	38	42	80
Wisconsin	101	21	122
Wyoming	3	14	17
U. S. Terr. and Possessions	42	10	52
<b>Totals</b>	<b>5,707</b>	<b>2,180</b>	<b>7,887</b>

\* Alaska, Hawaii, Puerto Rico, Virgin Islands.

## TOTAL EXAMINED

In table 2 are included figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state. There were 6,426 examined of whom 5,841 passed and 585 failed, representing graduates from sixty-seven approved medical schools in the United States and nine in Canada, seventy-seven medical schools of other countries, twenty medical schools now extinct, nine unapproved institutions and

(CONTINUED ON PAGE 1478)

Vertical Number

## SCHOOL

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
ARKANSAS																						
1 University of Arkansas School of Medicine				5	0	1	0		1	0												
CALIFORNIA																						
2 College of Medical Evangelists		1	1	47	0						1	0						1	0	1	0	3
3 Stanford University School of Medicine				44	0															1	0	3
4 University of California Medical School				48	1															1	0	3
5 University of Southern California School of Medicine		0	1	33	0															1	0	3
COLORADO																						
6 University of Colorado School of Medicine	2	0		2	0	7	0		1	0		1	0	1	0	2	0	1	0		1	0
CONNECTICUT																						
7 Yale University School of Medicine				1	0	3	0		2	0		0	1					1	0			1
DISTRICT OF COLUMBIA																						
8 George Washington University School of Medicine	1	0	2	0	5	0	1	1	1	0	16	0	1	0			1	0		10	0	1
9 Georgetown University School of Medicine						3	1		10	1	1	0							1	0	14	9
10 Howard University College of Medicine								2	0	1	2					2	0	1	0	1	0	1
GEORGIA																						
11 Emory University School of Medicine				1	0				14	14	0							1	0			1
12 University of Georgia School of Medicine							0	1	0	2	3	0										
ILLINOIS																						
13 Loyola University School of Medicine				3	0							44	1	3	1	1	0	2	0			4
14 Northwestern University Medical School		2	0	14	1	2	0	1	0	2	0								1	0	3	0
15 University of Chicago Rush Medical College	0	0		14	1	1	0	1	0	4	1	1	0	3	0	2	0	4	0	1	0	1
16 University of Chicago The School of Medicine												03	1	1	0	1	0	3		1	0	5
17 University of Illinois College of Medicine		2	0	2	0				3	1		17	0		1	0					6	0
INDIANA												12	0		1	0				0	1	0
18 Indiana University School of Medicine				3	0				1	0		06	1				1	0				1
IOWA																						
19 State University of Iowa College of Medicine				3	0						1	0		1	0	6	1			1	0	2
KANSAS																						
20 University of Kansas School of Medicine									1	0					63	0		1	0			2
KENTUCKY																						
21 University of Louisville School of Medicine				2	0	1	1		2	0			1	0	1	0	60	0				9
LOUISIANA																						
22 Louisiana State University Medical Center	1	0							3	0	1	0					40	0				0
23 Tulane University of Louisiana School of Medicine	2	1	0	2	0	4	0		18	1	1	0				1	0	7	1	0		0
MARYLAND																						
24 Johns Hopkins University School of Medicine	1	0		1	0			4	0	5	0		1	0				1	0	58	1	3
25 University of Maryland School of Medicine and College of Physicians and Surgeons				4	0	1	0	1	0	1	1	1	0		1	0			62	1	1	1
MASSACHUSETTS																						
26 Boston University School of Medicine				1	0	5	0															
27 Harvard University Medical School	1	0		3	0	1	0		1	0	3	0		1	0		1	0	1	0		3
28 Tufts College Medical School				1	0	11	2		2	1							14	0		45	14	
MICHIGAN																						
29 University of Michigan Medical School				2	0	1	0	2	0		1	0	1	0						4	0	8
30 Wayne University College of Medicine				1	1				1	0										78	0	0
MINNESOTA																						
31 University of Minnesota Medical School				4	0				2	0		0	1	2	0	1	0	1	0		1	0
MISSOURI																						
32 St. Louis University School of Medicine				1	0				1	1		1	0							0	2	1
33 Washington University School of Medicine				5	0	1	0	2	0		1	0			1	0				1	0	1
NEBRASKA																						
34 Creighton University School of Medicine				8	0				1	0		3	1	1	0	2	0	1	0		1	0
35 University of Nebraska College of Medicine				1	0	1	0					1	0		1	0	4	0	2	0	1	0
NEW YORK																						
36 Albany Medical College								8	0	1	0		1	0	1	0				2	0	1
37 Columbia University College of Physicians and Surgeons								1	0			2	0							1	0	1
38 Cornell University Medical College								2	0											1	0	1
39 Long Island College of Medicine								1	0											1	0	1
40 New York Homeo. Med. Coll. and Flower Hosp.													1	0						1	0	1
41 New York University College of Medicine	1	0							1	0										1	0	1
42 Syracuse University College of Medicine						1	0			1	0											3
43 University of Buffalo School of Medicine																				2	0	1
44 University of Rochester School of Medicine						1	0							1	0					2	0	1
NORTH CAROLINA																						
45 Duke University School of Medicine	1	0						1	0	2	0									2	0	1
OHIO																						
46 Ohio State University College of Medicine									1	0												1
47 University of Cincinnati College of Medicine									2	0												
48 Western Reserve University School of Medicine									1	0												
OKLAHOMA																						
49 University of Oklahoma School of Medicine	1	0		1	1				1	0					1	0						
OREGON																						
50 University of Oregon Medical School		1	0	8	0			1	0						1	0					1	0
PENNSYLVANIA																						
51 Hahnemann Medical College and Hospital of Philadelphia				2	0		4	0	6	2										2	0	9
52 Jefferson Medical College of Philadelphia				2	0	1	0	1	1	1	0		2	0						2	0	9
53 Temple University School of Medicine				1	0			0	1	1	0		3	1						1	0	1
54 University of Pennsylvania School of Medicine	1	0		2	0		1	0	1	0		3	0		1	0	2	0	1	0	2	1
55 University of Pittsburgh School of Medicine									1	0										1	0	2
56 Woman's Medical College of Pennsylvania				1	0		0	1		1	0											1
SOUTH CAROLINA																						
57 Medical College of the State of South Carolina									2	0			1	0								
TENNESSEE																						
58 Meharry Medical College				0	1				0	1	0	2			1	0				4	0	5
59 University of Tennessee College of Medicine		2	0						7	1	1	0								2	0	1
60 Vanderbilt University School of Medicine	3	0		1	0			1	0	4	1									1	0	1

I = Passed I = Failed

Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U S Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage Failed	No Boards Examined by Marginal Number			
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
1									4	1																			45	44	1	22	4	1		
2								1	0	1	0			3	0			1	0	2	0			1	0		1	0	66	65	1	15	14	2		
3																												1	0	49	49	0	0	4	3	
4							2	0	0	1																		53	51	2	38	4	4			
5																												34	33	1	29	2	5			
6	2	0							1	0											2	0		1	0			58	58	0	0	14	6			
7							1	0	2	0					1	0												13	12	1	77	9	7			
8			1	0			8	0	13	0		1	0		5	0						1	0					72	70	2	28	19	8			
9							2	0	9	6		2	0		24	2	6	1				1	0	1	0			190	107	23	177	16	9			
10	7	1					2	0	6	1	3	0			4	0	1	0		8	0		2	0		1	0	35	30	5	91	16	10			
11	5	0							2	1	2	0			2	0											1	0	82	80	2	24	11	11		
12									2	0					1	0	1	0						2	0			46	48	3	65	0	12			
13		1	0	1	0		5	0	9	7			10	0	1	0	1	0	2	0						2	0	103	92	11	107	17	17			
14		7	0	2	0		1	0	0	2	3	0	3	0	1	0	1	0			2	0	1	0			1	0	163	159	4	25	37	14		
15		5	1			1	0	4	5	1			5	0			1	0	1	0	3	0		9	0	2	0	160	155	5	31	26	15			
16		1	0				1	0	2	0		1	0							1	0		1	0				34	34	0	0	10	16			
17		5	0				0	1	3	0			1	0				2	0									163	160	3	18	12	17			
18											1	0		1	0									1	0	2	0	108	107	1	09	0	18			
19		1	0								1	0																76	75	1	13	8	19			
20		2	0				1	0				1	0	1	0	1	0							1	0	1	0	80	80	0	0	11	20			
21							1	0	2	0		1	0		1	0		1	0					5	0	3	0	1	0	94	93	1	11	15	21	
22	1	0																										46	46	0	0	5	22			
23	15	0	1	0	1	0			2	0			2	0	2	0	2	0	1	0	1	0	1	0			1	0	151	150	1	07	20	23		
24									4	0	1	0		1	0	2	0								1	0		86	85	1	12	14	24			
25							6	0	10	1	7	0		1	0	7	0	1	0				1	0	1	0		111	107	4	36	17	25			
26							1	0	5	0					1	0	8	0										72	57	15	208	10	26			
27									7	0	1	0		2	0	3	0	2	0	1	0		1	0		4	0	90	87	3	33	25	27			
28							3	0	1	0			5	1		11	1						1	0	2	0	1	117	98	19	162	13	28			
29									9	3					2	0	1	0										125	122	3	24	15	29			
30		1	0				1	0	9	3					2	0	1	0							1	0	1	0	87	86	1	12	6	30		
31		1	0	1	0		2	0	2	1	2	0	2	0	1	0			4	0					6	0	1	0	181	129	2	15	19	21		
32		78	0				4	0	9	3		3	0		11	1	3	0		1	0						1	0	124	117	7	57	16	32		
33		94	3	1	0				10	1	2	0	1	0					1	0							2	0	119	115	4	34	15	33		
34		1	0		27	0			8	1		3	0	1	0	1	0		5	0		1	0		4	0		71	69	2	28	17	34			
35		1	0		63	0		2	0		1	0		1	0	1	0		2	0		1	0		3	0	1	0	97	97	0	0	22	35		
36									14	0							1	0										14	14	0	0	1	35			
37							4	0	75	2																		103	100	3	29	10	37			
38							1	0	24	4	2	0		2	0			1	0				1	0	1	0		41	39	5	114	12	38			
39							6	0	80	3	1	0																114	105	9	79	10	39			
40									33	17			2	0					1	0								77	60	17	23	1	740			
41									113	4	1	0																126	122	4	32	7	41			
42									39	1	2	0														2	0	47	46	1	21	7	42			
43									37	6			1	0										1	0			69	63	6	87	5	4			
44							2	0	29	2		2	0		1	0								1	0			46	44	2	44	11	44			
45							2	0			5	0							1	0	1	0		1	0			17	17	0	0	10	45			
46													88	0		2	0											83	89	0	0	3	46			
47									62	1			66	1		1	0	3	0					1	0	1	0	1	0	73	72	1	14	0	47	
48																												61	60	1	16	8	43			
49									1	0			51	0		1	0											75	75	0	0	15	50			
50									1	0		1	0		42	0				1	0	3	0		10	0	1	0	75	75	0	0	15	50		
51							20	0	5	3		5	0		54	1	4	1										1	1	132	124	8	61	12	51	
52							14	0	14	5	2	0		5	0	83	0	2	0		1	0						0	1	146	139	7	48	19	52	
53							10	0	7	1	4	0				80	0	1	0						1	0		1	0	114	111	3	26	13	53	
54							9	0	11	3	9	0	1	0	1	0	1	0		66	0	1	0					2	0	140	1					

P = Passed F = Failed

Alaska Hawaii Puerto Rico

Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22									
SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota									
61 Baylor University College of Medicine	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P									
62 University of Texas School of Medicine				1	0		2	1		1	0						4	0				1	0								
VERMONT																															
63 University of Vermont College of Medicine							1	1											2	0	4	1	1	0							
VIRGINIA																															
64 Medical College of Virginia				1	0		1	0	2	0	1	0					1	0					1								
65 University of Virginia Department of Medicine									2	0	3	0	1	0																	
WISCONSIN																															
66 Marquette University School of Medicine				1	0		1	0					4	0									5	0	3						
67 University of Wisconsin Medical School													2	0				1	0	2	0	1	0			1					
CANADA																															
68 Dalhousie University Faculty of Medicine																															
69 Laval University Faculty of Medicine																								0	0						
70 McGill University Faculty of Medicine				4	0		1	0		1	1	1	0		1	0		4	0		2	0	3	0	1						
71 Queen's University Faculty of Medicine				1	0		1	0										2	0	1	0	0	1								
72 University of Alberta Faculty of Medicine														1	0																
73 University of Manitoba Faculty of Medicine																	1									1	0	3			
74 University of Montreal Faculty of Medicine																															
75 University of Toronto Faculty of Medicine				1	0				3	0			1	1											0	1					
76 University of Western Ontario Medical School																											1				
77 Foreign Medical Faculties				24	7	3	0	5	1			3	0		0	1	2	1	1	0				1	1	16	7	11	1	0	9
78 Extinct Medical Schools				1	1							9	9																		
79 Unapproved Schools and Undergraduates				1	0	13	1	0	3			1	0		67	3	1	0		1	0					31	15				
80 Totals	37	10	42	342	60	76	18	44	159	90	8	433	119	78	94	81	134	46	222	436	94	1									
81 Totals—Examined—Passed	37	8	42	328	59	63	13	43	135	88	7	423	115	77	94	81	134	45	194	197	243	1									
82 Totals—Examined—Failed	0	2	0	14	1	13	5	1	24	2	1	10	4	1	0	0	0	1	28	39	2										
83 Percentage Failed	0.0	20.0	0.0	4.1	1.7	17.1	27.8	2.3	15.1	2.2	12.5	2.3	3.4	1.3	0.0	0.0	0.0	2.2	12.6	4.8	0.8	0									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22									

P = Passed F = Failed

(CONTINUED FROM PAGE 1475)

several osteopathic colleges. Four undergraduates also were examined. Osteopaths granted the privilege to practice medicine, surgery or both by the medical board are included in these statistics. There were 5,511 graduates of approved medical schools in the United States examined, of whom 4 per cent failed, 112 graduates of approved Canadian medical schools, 17.9 per cent of whom failed, 437 graduates of schools outside the United States and Canada with 30.9 per cent failures, twenty-six who graduated from schools now extinct with 46.2 per cent of failures, and 340 from unapproved and osteopathic schools, of whom 57.9 per cent failed. These 340 candidates represented seventy-nine graduates of osteopathic schools, of whom twenty-seven passed and fifty-two, 65.8 per cent, failed, 257 graduates of unapproved schools, of whom 114 passed and 143, 55.6 per cent, failed, four undergraduates were examined, two of whom passed, one each in Kentucky and Oklahoma and two failed, one each in Mississippi and New York. The undergraduates in Kentucky and Oklahoma were granted a license limiting practice to a remote district. Mississippi examined one candidate by a special act of the legislature. Graduates of osteopathic schools were examined in Colorado, Connecticut, Massachusetts, New Jersey and Texas, while graduates of unapproved schools were examined in California, Florida, Illinois, Indiana, Massachusetts, Missouri, Ohio, Rhode Island, South Dakota and Hawaii. Illinois registered sixty-seven, Massachusetts twenty-six and Ohio sixteen practitioners of the latter group.

The largest number of graduates of any one school was 163 from Northwestern University Medical School, who were examined in thirty-two states, and the University of Illinois College of Medicine, also 163, examined in twelve states. The next highest number of

graduates from any one school was Rush Medical College, which had 160 graduates examined in twenty-six states. The New York Homeopathic Medical College and Flower Hospital and Boston University School of Medicine had the highest percentage of failures in the United States, 22.1 per cent and 20.8 per cent, respectively. Graduates of Northwestern University Medical School were examined in thirty-two, the University of Pennsylvania School of Medicine in twenty-nine, Rush Medical College in twenty-six and Harvard University Medical School in twenty-five states. From these statistics it might be inferred that these schools educate more nonresidents than do other schools. All the graduates of Albany Medical College, fourteen, were examined in New York. None failed. Graduates of the University of Southern California School of Medicine were examined in two states, and graduates of Ohio State University College of Medicine and the University of Pittsburgh School of Medicine in three states. The one eclectic board in existence, in Arkansas, did not examine any candidates. Canadian graduates took the test in twenty-four states. The greatest number, thirty-eight, represented McGill University Faculty of Medicine, who were examined in fourteen states, twenty-four graduates of the University of Toronto Faculty of Medicine were examined in twelve states and eighteen graduates of Queen's University Faculty of Medicine were examined in eight states. Two graduates of the University of Montreal Faculty of Medicine were examined and failed. The next highest percentage of failures was 75, representing Laval University Faculty of Medicine. The following fifteen schools had no failures before state licensing boards: Stanford University School of Medicine, University of Colorado School of Medicine, School of Medicine of the Division of the Biological Sciences of the University



TABLE 3—Candidates Registered by Reciprocity and Endorsement—1935

[illegible]



74 Creighton University School of Medicine	3 1	1 1 9 3	1	1	1	2 1 1 2	1	1	1	1	1	1	3	1	1	1	3	34
75 University of Nebraska College of Medicine	8 2	3 3 4 1	3 1	1	1	2 1 1 2	1	1	1	1	1	1	1	1	1	1	4	35
NEW YORK																		
76 Albany Medical College	1	6 7 3	2	1	1	2 8 17	1	3	1	1	1	1	1	1	1	1	1	36
77 Columbia University College of Physicians and Surgeons	1	1 1 2	2	1	1	1 2 19	1	1	1	1	1	1	1	1	1	1	1	37
78 Cornell University Medical College	2 1	1 1	1	1	1	1 3 2	1	1	1	1	1	1	1	1	1	1	1	38
79 Long Island College of Medicine	2	1 1	1	1	1	1 1 6	1	1	1	1	1	1	1	1	1	1	1	39
80 New York Homeopathic Medical College and Lower Hospital	2	1	1	1	1	1 1 8	1	1	1	1	1	1	1	1	1	1	1	40
81 New York University College of Medicine	2	1	1	1	1	1 1 8	1	1	1	1	1	1	1	1	1	1	1	41
82 Syracuse University College of Medicine	1	2 1 1	2	1	1	1 2 1	3	1	1	1	1	1	1	1	1	1	1	42
83 University of Buffalo School of Medicine	1	2 1 1	2	1	1	1 2 1	3	1	1	1	1	1	1	1	1	1	1	43
84 University of Rochester School of Medicine	1	1	1	1	1	1 1 1	8	1	1	1	1	1	1	1	1	1	1	44
NORTH CAROLINA																		
85 Duke University School of Medicine	1	1	1	1	1	1 2 1	1	1	1	1	1	1	1	1	1	1	1	45
OHIO																		
86 Ohio State University College of Medicine	1	1 2	1	1	1	1 1 5	1	1	1	1	1	1	1	1	1	1	1	46
87 University of Cincinnati College of Medicine	4	9 2	6	1	2	1 1 1	1	1	1	1	1	1	1	1	1	1	1	47
88 Western Reserve University School of Medicine	1	1 1	1	1	1	1 1 1	1	1	1	1	1	1	1	1	1	1	1	48
OKLAHOMA																		
89 University of Oklahoma School of Medicine	1	1 1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	49
OREGON																		
90 University of Oregon Medical School	3	3	1	1	1	1 1	3	1	1	1	1	1	1	1	1	1	1	50
ILLINOIS																		
91 Hahnemann Medical College and Hospital of Philadelphia	1 1	1	1	1	1	1 1 1	6	4	1	1	1	1	1	1	1	1	1	51
92 Jefferson Medical College of Philadelphia	1 1	1 1	1	1	1	1 1 1	7	1	1	1	1	1	1	1	1	1	1	52
93 Temple University School of Medicine	1	1	1	1	1	1 1 1	5	2	3	1	1	1	1	1	1	1	1	53
94 University of Pennsylvania School of Medicine	1	1	1	1	1	1 1 1	4	3	2	3	1	1	1	1	1	1	1	54
95 University of Pittsburgh School of Medicine	1 1	1	1	1	1	1 1 1	3	3	1	1	1	1	1	1	1	1	1	55
96 Woman's Medical College of Pennsylvania	1 1	1 1	1	1	1	1 2 1	3	3	1	1	1	1	1	1	1	1	1	56
SOUTH CAROLINA																		
97 Medical College of the State of South Carolina	2	1	2	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	57
MISSISSIPPI																		
98 McHerry Medical College	1	1	1	1	1	2 2 2	1	2	2	1	1	1	1	1	1	1	1	58
99 University of Tennessee College of Medicine	4	6 1	1	1	1	2 1 4 3	1	2	2	1	1	1	1	1	1	1	1	59
100 Vanderbilt University School of Medicine	1	1 4 3	1	1	1	1 1 3	1	1	1	1	1	1	1	1	1	1	1	60
TEXAS																		
101 Baylor University College of Medicine	1 3 2	1	1	1	1	1 1	1	2	2	1	1	1	1	1	1	1	1	61
102 University of Texas School of Medicine	1	1	1	1	1	1 1	1	2	1	1	1	1	1	1	1	1	1	62
VERMONT																		
103 University of Vermont College of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	63
VIRGINIA																		
104 Medical College of Virginia	1	1	1	1	1	2 2	1	3	4	2	1	1	1	1	1	1	1	64
105 University of Virginia Department of Medicine	1	2 2	1	1	1	2 7 2	1	2	7	2	1	1	1	1	1	1	1	65
WISCONSIN																		
106 Marquette University School of Medicine	1 1 1	1 1	1	1	1	1 2 1	2	1	2	1	1	1	1	1	1	1	1	66
107 University of Wisconsin Medical School	1	1	1	1	1	1 2 1	2	1	1	1	1	1	1	1	1	1	1	67
CANADA																		
108 Dalhousie University Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	68
109 McGill University Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	69
110 Queen's University Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	70
111 University of Alberta Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	71
112 University of Manitoba Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	72
113 University of Montreal Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	73
114 University of Toronto Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	74
115 University of Western Ontario Faculty of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	75
116 University of Western Ontario Medical School	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	76
ALASKA																		
117 University of Alaska School of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	77
HAWAII																		
118 University of Hawaii School of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	78
PUERTO RICO																		
119 University of Puerto Rico School of Medicine	1	1	1	1	1	1 1	1	1	1	1	1	1	1	1	1	1	1	79
TOTALS																		
120 Totals	26 19 147 4 44 2 2	0 10 13 101 44 39 34 38 6 10 30	63 57 14 17 51 18 12 13 31 136 28 393 48 9 132 28 11 61 1	7 16 24 131 13 48 42 21 14 162 180 80	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 4—Physicians Licensed by Reciprocity and Endorsement—1935

[illegible]

**Alaska Hawaii Puerto Rico Virgin Islands**

(CONTINUED FROM PAGE 1479)

132, Texas fifth with 118 and Illinois sixth with 101. All other states licensed fewer than 100. The largest group representing the same type of credentials were the 442 diplomates of the National Board of Medical Examiners, the next greatest number (126) came from Tennessee, Illinois was third with 123, New York was fourth with 118, and Maryland was fifth with 101. Only 118 New York licenses were endorsed during the year, while 395 were licensed on the basis of credentials. Of the latter, sixty-nine were registered on the basis of foreign licenses or diplomas giving the right to practice in the country in which issued.

Twelve physicians were licensed on the basis of Canadian credentials (both provincial and dominion) in four states: Arizona one, Maryland one, New York eight and Vermont two. New York was the only state in which physicians were registered by endorsement of European credentials. Sixty-nine were so licensed representing the following countries: Austria one, England two, France one, Germany fifty-nine, Hungary one, Ireland one, Italy two, Latvia one and Netherlands one. Two physicians were registered in California by the endorsement of certificates from Hawaii and three in New York on the basis of licenses issued in Puerto Rico.

One candidate was licensed by the homeopathic board in Maryland.

Not included in the table are fifteen osteopaths licensed by the board of medical examiners in two states, namely, thirteen granted the right to practice medicine and surgery in Texas, and two permitted the privilege of practicing surgery in Wyoming.

Diplomates of the National Board of Medical Examiners were registered in thirty-nine states, Alaska and Hawaii.

Illinois licentiates were registered in thirty states, while the state that had the highest number of its licenses endorsed, Tennessee, had its 126 licentiates registered in twenty-nine states; seventeen went to New York State. New York had the greatest number of its licentiates registered in any one state: forty-seven, who were given the right to practice in New Jersey, forty-two licentiates of Maryland went to New York State. Alabama, Arizona, Connecticut, Delaware, District of Columbia, Florida, Idaho, Maine, Mississippi, Montana, Nevada, New Hampshire, North Dakota, Rhode Island, South Dakota, Washington, Wyoming, Hawaii and Puerto Rico had less than ten of their licentiates endorsed to other states and New Mexico had none.

In table 3, the 2,165 physicians and 15 osteopaths registered by reciprocity and endorsement are recorded by school of graduation and state or territory where licensed. All of the existing United States medical schools and seven of the nine Canadian schools were represented. The largest number of graduates of any one school were from Harvard University Medical School 96, the University of Michigan Medical School had 67 registered by this method. Rush Medical College 64, the University of Illinois College of Medicine and the University of Tennessee College of Medicine 59 each. Northwestern University Medical School and Johns Hopkins University School of Medicine 57 each. Graduates of 47 foreign medical faculties, 47 extinct medical schools and 1 unapproved institution were licensed without examination. Thirteen osteopaths were granted the right to practice medicine and surgery in Texas and two permitted the privilege of practicing surgery in Wyoming. There were 111 graduates of

foreign medical faculties registered, 71 from extinct medical schools and one graduate of an unapproved institution.

## CANDIDATES ADDED TO THE PROFESSION

In table 5 are recorded the number of candidates added to the profession during 1935. The number represents candidates examined in 1935 and licensed, also those examined in previous years whose licenses were withheld and issued in 1935, those certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials, and miscellaneous. In the main they represent recent graduates. Altogether, 5,500 were

TABLE 5—Licentiates Representing Additions to the Medical Profession—1935

	Examina- tion	Endorse- ment	Total
Alabama	34	0	34
Arizona	4	2	6
Arkansas	41	0	41
California	300	12	312
Colorado	38	2	40
Connecticut	39	19	58
Delaware	8	2	10
District of Columbia	21	0	21
Florida	28	0	28
Georgia	87	0	87
Idaho	0	0	0
Illinois	407	11	418
Indiana	101	0	101
Iowa	91	3	94
Kansas	91	1	92
Kentucky	72	2	74
Louisiana	97	0	97
Maine	32	5	37
Maryland	142	5	147
Massachusetts	147	3	150
Michigan	212	0	212
Minnesota	121	6	127
Mississippi	23	0	23
Missouri	191	2	193
Montana	6	1	7
Nebraska	88	0	88
Nevada	2	0	2
New Hampshire	4	4	8
New Jersey	160	0	160
New Mexico	1	1	2
New York	814	188	1,002
North Carolina	63	4	67
North Dakota	6	1	7
Ohio	278	10	288
Oklahoma	10	1	11
Oregon	30	1	31
Pennsylvania	476	13	489
Rhode Island	31	1	32
South Carolina	40	0	40
South Dakota	0	0	0
Tennessee	170	4	174
Texas	183	12	195
Utah	20	2	22
Vermont	19	7	26
Virginia	104	8	112
Washington	34	7	41
West Virginia	24	1	25
Wisconsin	101	0	101
Wyoming	2	0	2
U. S. Territories and Possessions	21	0	21
Totals	5,090	410	5,500
Totals for 1934	5,020	476	5,496

\* Ala. La. Hawaii Puerto Rico

added to the profession as contrasted with approximately 4,000, the number removed by death in 1935. These figures indicate that at least 1,500 have been added to the already overcrowded medical profession. It is assumed that by far the great majority of those licensed are in practice. It is interesting to note that of 7,887 licenses issued throughout the year, 5,500, 69.7 per cent, are actual additions to the medical profession. The largest number added to the profession was in New York 1,022, Pennsylvania added 439 and Illinois 418, Nevada, New Mexico and Wyoming added two. In 1934 there were 5,451 added to the profession. Forty-nine more were added in 1935. Of the figure for 1935, 5,090 were licensed after examination and 410 by endorsement of credentials representing principally those who presented the certificate of the National Board of Medical Examiners.

STATE REQUIREMENTS OF PRELIMINARY  
EDUCATION

The minimum requirement of preliminary education exacted by the Council on Medical Education and Hospitals since 1918 has been two years of college work. There are still eight states, however, which have not revised or amended their statutes to conform with this prerequisite, although these same states, with possibly

TABLE 6—State Requirements of Premedical Training

Two Years of College		
Alabama	Maloc	Oregon
Arizona	Maryland	Rhode Island
Arkansas	Michigan	South Carolina
Colorado	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	Pennsylvania
High School Graduation or Its Equivalent		
Delaware	Missouri	Ohio
Massachusetts	Nebraska	

one or two exceptions, do not license other than graduates of approved schools. Table 6 records the pre-medical training required in each state.

## REQUIRED INTERNSHIP

Since 1914 seventeen states, Alaska and the District of Columbia have required that applicants for licensure possess a hospital internship. The first state exacting the internship was Pennsylvania and the last one Ver-

TABLE 7—Internship Required by Medical Licensing Boards

	1914		1914
Alaska	1917	Pennsylvania	1914
Delaware	1924	Rhode Island	1917
District of Columbia	1930	South Dakota	1921
Illinois	1923	Utah	1920
Iowa	1924	Vermont	1934
Michigan	1922	Washington	1910
New Jersey	1916	West Virginia	1932
North Dakota	1918	Wisconsin	1927
Oklahoma	1933	Wyoming	1931
Oregon	1935		

mont, affecting the graduates of 1934 and thereafter. A list of the states and others demanding the internship with the effective dates are shown in table 7.

## CANDIDATES EXAMINED FROM 1931 TO 1935 INCLUSIVE

In table 8 are listed the number of candidates examined in the various states, territories and possessions in the last five years, 1931-1935 inclusive, showing those who passed and failed. In this period New York licensed 4,015 candidates, Pennsylvania 2,263, Illinois 1,885, California 1,539, Ohio 1,370, Michigan 1,141 and Massachusetts 1,043. All other states licensed less than 1,000. Thirty-one states licensed less than 500 and eleven states less than 100. The smallest number (51) were examined in New Mexico. The percentage of candidates who failed in the examinations in the past five years is given in the last column. The proportion of failures in all states has increased from 6.2 per cent in 1931 to 9.1 per cent in 1935. In the five year period, 44.1 per cent of the applicants failed in Massachusetts. The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of

unapproved schools, many of whom repeatedly fail. The next highest proportion of failures was in New York with 17.6 per cent. The comparatively high percentage in this state is occasioned by the fact that New York admits a great many graduates of foreign medical schools to its licensing examination. Delaware had 17.1 per cent failures, Nevada 16.7 per cent, Connecticut 14.5 per cent and Florida 12.9 per cent. Florida has no reciprocal relations with any state, all candidates applying being required to take the licensing examinations. Graduates of earlier years, it appears experience difficulty in passing examinations. On the other hand, Alabama, Kansas, Montana, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota, Vermont and Washington—eleven states—had no failures. Arkansas, California, Colorado, District of Columbia, Georgia, Idaho, Illinois,

TABLE 8—Candidates Examined—1931-1935 Inclusive

	1931		1932		1933		1934		1935		Totals for 5 Years	
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Percentage Failed
Alabama	29	0	14	0	11	0	20	0	37	0	111	0.00
Arizona	29	1	14	2	0	1	2	2	8	2	58	3.45
Arkansas	20	0	43	0	44	1	53	0	42	0	211	1.05
California	374	14	290	15	204	1	303	16	378	14	1,539	7.95
Colorado	48	2	59	0	60	0	60	2	50	1	291	8.27
Connecticut	99	4	68	12	63	15	70	12	63	13	339	6.16
Delaware	12	0	6	0	18	1	14	7	13	5	63	13.11
District of Columbia	27	0	43	1	39	1	50	1	43	1	207	4.19
Florida	53	5	65	6	80	0	100	27	100	24	441	5.44
Georgia	77	0	100	0	88	1	83	0	85	2	433	0.47
Idaho	0	0	5	0	0	0	10	0	7	1	33	1.28
Illinois	365	24	760	28	769	14	368	13	423	10	1,885	8.05
Indiana	124	0	110	11	114	6	143	4	115	4	606	1.94
Iowa	109	1	115	0	110	1	100	0	77	1	511	0.00
Kansas	74	0	76	0	80	0	93	0	94	0	422	0.00
Kentucky	64	1	99	0	60	0	80	2	81	0	363	3.08
Louisiana	102	1	111	3	119	0	122	0	134	0	688	4.07
Maine	30	0	30	0	35	0	37	0	45	1	179	1.06
Maryland	13	3	176	5	165	2	204	17	194	28	892	5.58
Massachusetts	213	194	208	132	189	177	230	170	197	239	1,043	8.93
Michigan	260	0	219	0	194	0	225	2	243	2	1,141	4.04
Mississippi	150	0	142	0	126	1	169	0	173	0	760	1.01
Minnesota	35	0	27	0	24	0	28	1	30	1	144	2.14
Missouri	157	0	156	0	215	0	186	2	214	8	928	1.11
Montana	7	0	8	0	8	0	0	8	0	0	40	0.00
Nebraska	57	0	07	0	06	0	89	0	00	0	306	0.00
Nevada	2	0	4	1	1	1	5	0	3	1	15	3.00
New Hampshire	0	0	0	0	10	0	6	0	4	0	35	0.00
New Jersey	91	5	113	7	153	9	175	10	182	7	714	26.48
New Mexico	0	0	0	0	0	0	1	0	0	0	6	0.00
New York	838	140	717	170	747	146	834	193	870	19	4,015	8.90
North Carolina	74	0	87	1	90	0	74	0	94	0	364	1.03
North Dakota	16	1	21	0	14	2	12	1	14	1	71	5.61
Ohio	250	7	270	10	283	7	201	0	200	3	1,370	3.24
Oklahoma	51	0	99	0	66	0	73	0	92	0	312	0.00
Oregon	40	1	31	1	39	0	23	0	50	0	190	2.10
Pennsylvania	419	0	438	8	446	16	466	10	464	0	2,263	4.18
Rhode Island	36	0	40	1	38	3	34	3	53	4	201	11.52
South Carolina	47	0	40	0	38	0	40	0	49	0	220	0.00
South Dakota	10	0	12	0	14	0	10	0	20	0	72	0.00
Tennessee	108	3	100	1	141	0	17	0	181	1	88	0.06
Texas	151	2	147	0	199	0	165	2	188	4	829	6.19
Utah	10	0	24	0	9	0	20	0	26	1	8	1.12
Vermont	20	0	23	0	27	0	0	0	26	0	126	0.00
Virginia	101	2	115	3	140	1	140	4	101	1	597	11.18
Washington	33	0	42	0	41	0	45	0	44	0	200	0.00
West Virginia	30	2	27	1	9	2	2	0	38	0	156	5.11
Wisconsin	98	11	119	3	115	5	118	4	110	0	567	23.40
Wyoming	5	0	2	0	2	0	1	1	0	0	13	1.71
U. S. Terr. & Possessions	118	2	104	4	38	4	29	4	40	6	29	20.00
Totals—Examined	5,693	5,666	6,641	6,149	6,196	29,000						
Passed	5,960	5,278	5,221	5,629	5,841	24,194						
Failed	348	428	420	520	355	2,806						
Percentage Failed	6.2	7.6	7.6	8.4	9.1							

Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, West Virginia and Wisconsin—twenty-seven states—had less than 5 per cent of failures. A total of 29,500 candidates were examined in the five years from 1931 to 1935 inclusive, of whom 27,194 passed and 2,306 failed, 7.8 per cent. These

figures represent examinations given and not individuals. A candidate who fails more than once in a given year has not been counted twice, but should he fail in one of the succeeding years in another state he is counted in that year also. Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as passed and failed. With a total of 2,306 failures for the five year period, it seems likely that there were approximately 27,000 individuals examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state. This figure gives a fair estimate of the number of physicians added to the profession each year. Table 5 gives exact totals on this point for the years 1934 and 1935. From this table it can be seen that there has been a gradual increase in the number of physicians examined.

## REGISTRATION 1904-1935

A study of totals and percentages (table 9) for each year beginning with 1904 is of interest. The number (5,841) who passed in 1935 was 221 more than the number who passed in 1934 and only 165 more than in 1904. The number licensed without examination, 2,180, was forty-one more than in 1934. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By all methods, 8,021 were registered, 262 more than in 1934. This figure represents the largest number of candidates registered since 1904.

TABLE 9—Registration—1904-1935

Year	All Candidates Examined		Registered Without Written Examination	Total Registered
	Passed	Percentage Failed		
1904	5,676	10.4	990	6,675
1905	5,677	20.7	394	6,081
1906	6,308	20.8	1,490	7,867
1907	5,731	21.2	1,427	7,158
1908	6,087	21.7	1,981	7,568
1909	5,865	19.6	1,375	7,238
1910	5,715	18.4	1,640	7,355
1911	5,595	19.8	1,243	6,826
1912	5,466	20.5	1,271	6,737
1913	5,250	18.0	1,291	6,541
1914	4,378	21.5	1,438	5,816
1915	4,507	15.5	1,394	5,901
1916	4,145	14.9	1,351	5,496
1917	4,083	14.1	1,360	5,443
1918	3,180	13.2	1,046	4,226
1919	4,074	14.2	2,543	6,617
1920	4,060	15.3	2,534	6,614
1921	4,221	12.4	2,181	6,406
1922	3,737	12.2	2,063	5,600
1923	4,076	14.8	2,398	6,474
1924	4,153	11.8	1,910	6,063
1925	5,415	9.2	1,849	7,294
1926	5,309	7.9	1,979	7,248
1927	4,965	7.2	2,170	7,165
1928	5,084	6.8	2,227	7,311
1929	5,279	5.7	2,416	7,695
1930	5,247	6.2	2,322	7,609
1931	5,228	7.6	2,209	7,469
1932	5,130	7.6	1,875	7,113
1933	5,130	7.6	1,968	7,203
1934	5,190	8.4	2,111	7,759
1935	5,841	9.1	2,180	8,021

Of those examined 9.1 per cent failed in 1935, while 8.4 per cent failed in 1934. While these figures represent those registered in the years given they do not in all states represent the number licensed in a given year. Licenses are withheld in many states as indicated in the text describing table 1.

It will be seen that there has been no constant increase or decrease in the total number of candidates registered from 1904 to 1933 although since 1906 the number licensed without examination has been increasing owing to the universal system of endorsement and the recognition of the certificate of the National Board

of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There was, however, a substantial increase in the number registered in 1934 and a still larger increase in 1935, the majority having been by examination. This is probably accounted for by the fact that medical schools are graduating larger classes, 5,035 in 1934 and 5,101 in 1935. The enrolment in

TABLE 10—Source of Physicians Registered—1922-1935

Date	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922	4,513	80.6	1,087	19.4	5,600
1923	5,193	80.8	1,231	19.2	6,424
1924	5,619	80.2	984	14.8	6,663
1925	6,309	88.4	959	13.6	7,294
1926	6,426	88.7	822	11.3	7,248
1927	6,406	89.4	759	10.6	7,165
1928	6,584	90.1	727	9.9	7,311
1929	6,999	91.0	696	9.0	7,695
1930	7,007	91.1	602	7.2	7,609
1931	6,928	92.8	541	7.2	7,469
1932	6,966	93.7	447	6.3	7,113
1933	6,749	93.7	454	6.3	7,203
1934	7,148	91.1	611	7.9	7,759
1935	7,343	91.5	678	8.5	8,021

medical schools for the present college session and subsequent years in many cases has been and will be reduced.

## SOURCE OF PHYSICIANS REGISTERED

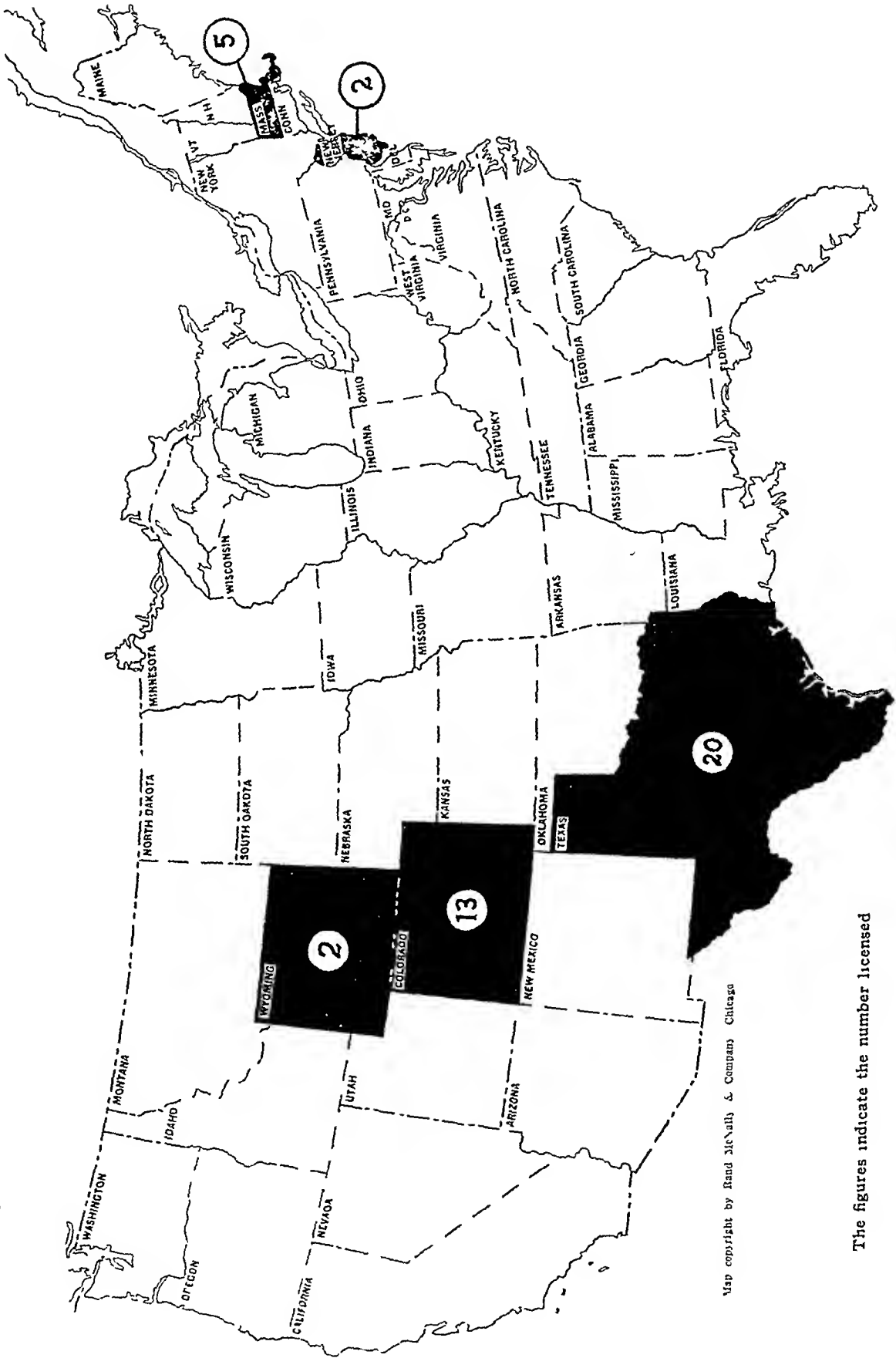
The educational fitness of the individuals registered in the last fourteen years, 1922-1935, is shown in table 10. Of the 8,021 registered by all methods in 1935, 7,343, or 91.5 per cent, graduated from approved medical schools and there were 678, 8.5 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign medical faculties, class C graduates, undergraduates, osteopaths and graduates of schools that have been refused all recognition as medical schools.

## GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS REGISTERED

In table 11 will be noted the total number of graduates of osteopathic colleges and those institutions which have been classified as unapproved, who were registered with or without examination in 1933, 1934 and 1935. In 1935, thirteen states registered 123 graduates of unapproved medical schools and five states registered forty-two osteopaths, granting the latter the privilege of practicing medicine, surgery or both. Of those examined, 114 were graduates of unapproved medical schools and twenty-seven were osteopaths, while two were undergraduates.

The number of unapproved graduates increased by twenty the number registered in 1934. One each was licensed in Florida, Indiana, North Dakota, Rhode Island and South Dakota. Undergraduates were licensed, one each, in Kentucky (limited license) and Oklahoma (by petition to the governor). Missouri and New Mexico licensed two and California three unapproved graduates. The sixteen who were registered in Ohio are graduates of the Eclectic Medical College of Cincinnati an unapproved institution. More recently the school has determined to enroll no new

CHART 1—STATES LICENSING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH—1935



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The figures indicate the number licensed



students in the school and to discontinue teaching when the present freshman class is graduated

The twenty-six registered in Massachusetts represented two unapproved colleges located in that state and a few elsewhere. This state by law is required to admit to its examination a graduate of any chartered medical school. Sixty-seven graduates of the Chicago Medical School, an unapproved institution, were registered in Illinois. While twenty-six graduates of unapproved schools were registered by examination in Massachusetts, there were 138 failures 84 per cent.

In the three year period shown, 292 graduates of unapproved schools and undergraduates were registered by examination and twenty-two by endorsement.

Forty-two osteopaths were licensed to practice medicine and surgery by examination and endorsement in five states, twenty-seven after examination and fifteen

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital approved by the board of medical examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In Wyoming, osteopaths are granted the right to practice surgery.

In the three year period shown a total of 476 licenses were granted to either graduates of unapproved medical schools or osteopaths. It is to be regretted that such persons are granted the right to practice. The medical profession should be ever watchful and

TABLE 11—Graduates of Other Than Approved Medical Schools Registered—1933-1935

	Examination						Reciprocity and Endorsement						Totals
	Osteopaths			Graduates of Un approved Schools and Undergraduates			Osteopaths			Graduates of Un approved Schools and Undergraduates			
	1933	1934	1935	1933	1934	1935	1933	1934	1935	1933	1934	1935	
Alabama	0	0	0	0	0	0	0	0	0	1	0	0	1
Arkansas	0	0	0	1	1	0	0	0	0	1	0	0	2
California	0	0	0	0	0	1	0	0	0	0	0	2	4
Colorado	8	10	15	0	0	0	0	0	0	0	0	0	31
Connecticut	2	1	0	0	0	0	0	0	0	0	0	0	3
District of Columbia	0	0	0	0	0	0	1	0	0	0	0	0	1
Florida	0	0	0	0	1	1	0	0	0	0	0	0	2
Idaho	0	0	0	0	0	0	0	0	0	0	1	0	1
Illinois	0	0	0	35	33	67	0	0	0	0	0	0	133
Indiana	0	0	0	0	0	1	0	0	0	0	0	0	1
Iowa	0	0	0	0	1	0	0	0	0	0	0	0	1
Kansas	0	0	0	0	1	1	0	0	0	0	0	0	3
Kentucky	0	0	0	1	1	1	0	0	0	0	0	0	3
Massachusetts	1	21	7	38	54	26	0	0	0	0	0	0	159
Michigan	0	0	0	0	0	0	0	0	0	1	0	0	1
Mississippi	0	0	0	0	1	0	0	0	0	0	1	0	2
Missouri	0	0	0	1	0	0	0	0	0	0	0	2	3
New Jersey	0	0	2	0	0	0	0	0	0	1	4	0	7
New Mexico	0	0	0	0	0	0	0	0	0	1	0	2	3
North Dakota	0	0	0	0	0	0	0	0	0	0	0	1	1
Ohio	0	0	0	0	0	16	0	0	0	0	1	0	17
Oklahoma	0	0	0	0	0	1	0	0	0	0	0	0	1
Rhode Island	0	0	0	0	0	1	0	0	0	0	0	0	1
South Dakota	0	0	0	0	0	1	0	0	0	0	0	0	1
Tennessee	0	0	0	1	0	0	0	0	0	1	0	0	2
Texas	4	7	7	0	0	0	13	17	13	0	2	0	6
Washington	0	0	0	1	0	0	0	0	0	0	0	0	1
Wisconsin	6	2	0	0	0	0	9	3	0	0	0	0	20
Wyoming	0	0	0	0	0	0	0	1	2	0	0	0	3
Alaska	0	0	0	1	1	0	0	0	0	0	0	0	2
Totals	35	41	27	87	94	116	29	21	15	6	9	7	46

by endorsement during 1935. These osteopaths were registered in Colorado, Massachusetts, New Jersey, Texas and Wyoming. As shown by table 2, fifty-two osteopaths failed of registration by examination, forty-seven in Massachusetts, one each in Colorado and Texas and three in Connecticut. In this connection the following facts are of interest.

In Colorado osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute by definition includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for a license to practice must be in possession of a degree of doctor of medicine or its equivalent, from a legally chartered medical school that gives a full four-year course of instruction of not less than thirty-two weeks in each year.

untiring in its efforts to prevent osteopaths and others from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate. Fewer osteopaths were registered in 1935 than in the previous two years but twenty more graduates of unapproved schools than in 1934.

The results of the medical school survey being conducted by the Council on Medical Education and Hospitals in cooperation with the Association of American Medical Colleges and the Federation of State Medical Boards of the United States should be of assistance to licensing boards.

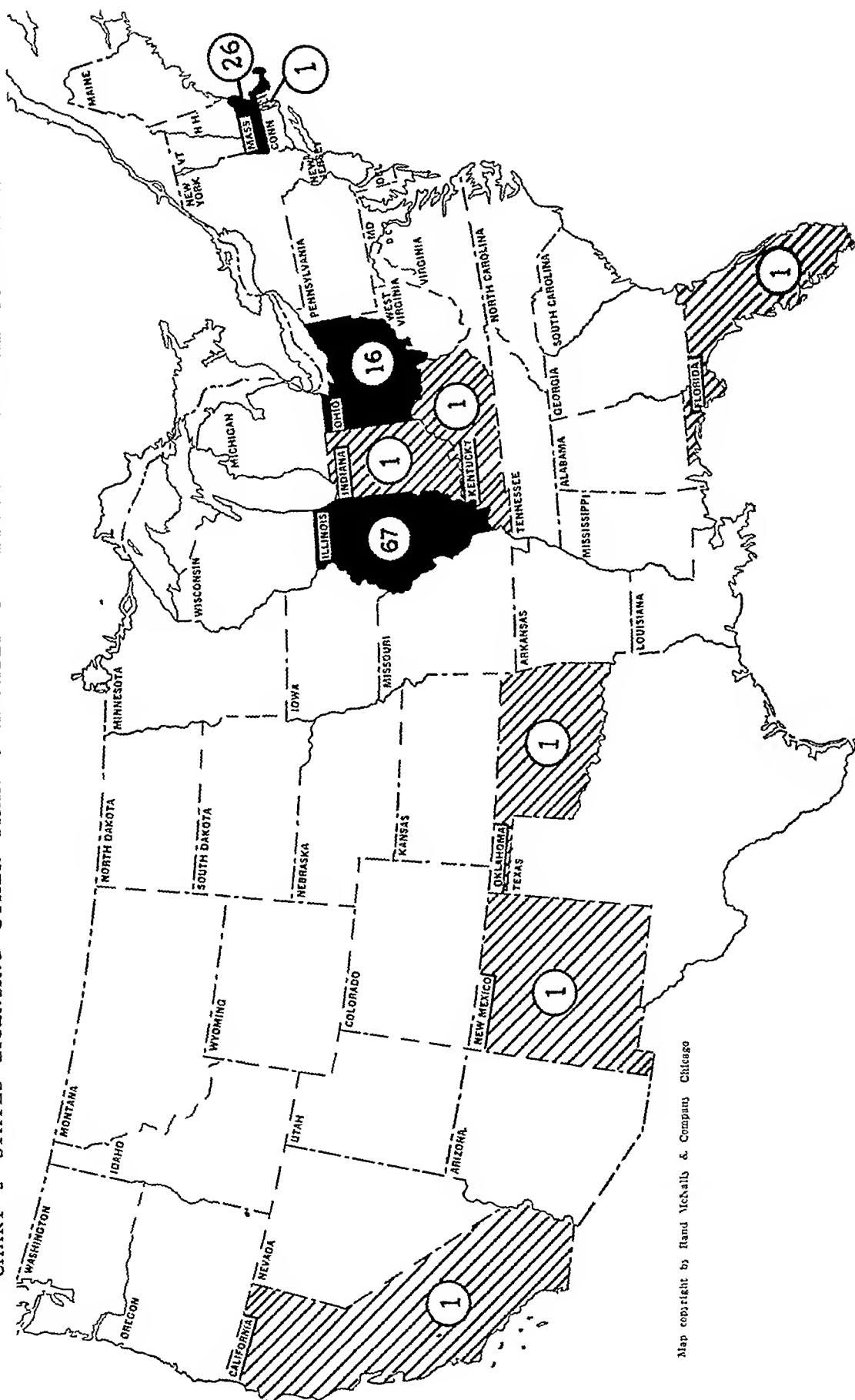
Two charts are presented herewith. Chart 1 shows the states that licensed osteopaths to practice medicine, surgery or both in 1935. Chart 2 indicates by shaded lines those states licensing fewer than five graduates of existing unapproved medical schools and, by a solid area, those licensing more than five such candidates.

#### GRADUATES OF FACULTIES OF MEDICINE ABROAD

A study of the number of Americans pursuing medical courses in Europe has been carried on by the Council since 1931, when it became evident that great numbers of Americans were going to Europe to study. There are now about 1,500 American students studying

(Continued on page 1497)

CHART 2—STATES LICENSING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1935



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The states in black licensed more than 5 such candidates, those shaded 5 or less The figures indicate the number licensed

	1930-1931* Inclusive		1932			1930-1931* Inclusive		1932	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed		Number Examined	Percentage Failed	Number Examined	Percentage Failed
<b>AUSTRALIA</b>									
University of Adelaide	1	0.0	0	0.0		9	44.4	0	0.0
University of Melbourne	1	0.0	0	0.0		7	71.4	0	0.0
<b>AUSTRIA</b>									
Karl Franzens Universität Graz	18	35.6	3	40.0		1	0.0	0	0.0
Leopold Franzens Universität Innsbruck	4	2.0	0	0.0		5	80.0	12	100.0
Universität Wien	10	31.4	32	31.2		118	63.3	18	50.0
<b>BEIGIUM</b>									
Université Catholique de Louvain	6	0.0	3	33.3		8	62.5	4	50.0
Université de Liège	1	100.0	1	100.0		30	73.3	4	100.0
Université Libre de Bruxelles	1	0.0	0	0.0		3	66.7	0	0.0
<b>CHILE</b>									
Universidad de Chile Santiago	0	0.0	1	0.0		1	0.0	0	0.0
<b>CHINA</b>									
National College of Medicine of Shanghai	1	0.0	0	0.0		52	51.9	37	54.0
Pennsylvania Medical School Shanghai	2	0.0	0	0.0		2	50.0	1	0.0
University of Hongkong	1	0.0	0	0.0		2	0.0	0	0.0
<b>COLOMBIA</b>									
Universidad de Cartagena	1	0.0	0	0.0					
<b>CUBA</b>									
Universidad de la Habana	21	33.3	2	0.0					
<b>CZECHOSLOVAKIA</b>									
Deutsche Universität Prag	20	0.0	1	0.0					
Masarykova Universita Brno	4	100.0	1	100.0					
Universita Karlova Praha	7	28.6	0	0.0					
Univerzita Komeniova Bratislava	3	66.7	1	100.0					
<b>DOMINICAN REPUBLIC</b>									
Universidad de Santo Domingo	4	25.0	0	0.0					
<b>ENGLAND</b>									
Licentiate in Medicine Surgery and Midwifery of the Apothecaries Society of London	0	0.0	1	100.0					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	0	0.0	1	100.0					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	0	4.4	13	0.0					
University of Bristol	0	0.0	1	0.0					
University of Liverpool	1	0.0	0	0.0					
University of London	1	0.0	2	100.0					
University of Oxford	1	0.0	0	0.0					
University of Sheffield	2	50.0	1	0.0					
<b>ESTONIA</b>									
Universite de Tartu	1	0.0	0	0.0					
<b>FRANCE</b>									
Université de Bordeaux	5	60.0	0	0.0					
Université de Lyon	2	0.0	0	0.0					
Université de Montpellier	2	50.0	0	0.0					
Université de Paris	20	50.8	17	41.2					
Université de Strasbourg	2	50.0	3	33.3					
Université de Toulouse	1	0.0	2	50.0					
<b>GERMANY</b>									
Albert Ludwigs Universität Freiburg	14	27.7	8	37.5					
Albertus Universität Königs									

TABLE 13—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1935*

Original Number	California	Colorado	Connecticut	Florida	Illinois	Indiana	Iowa	Maine	Maryland	Massachusetts	Michigan	Minnesota	Missouri	Nevada	New Jersey	New York	North Dakota	Ohio	Oklahoma	Pennsylvania	Rhode Island	Tennessee	Texas	Utah	Vermont	Washington	West Virginia	Wisconsin	Alaska	Puerto Rico	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. of Boards Examined by	Marginal Number			
1 Karl Franzens Universität Graz	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	22	10	31.2	2	1		
2 Universität Wien	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	5	22	10	31.2	2	1		
3 Université Catholique de Louvain	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	3	2	1	33.3	3	3		
4 Université de Liège	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	3		
5 Universidad de Chile, Santiago	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0.0	1	3		
6 Universidad de la Habana	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	2	0	0.0	1	0		
7 Círculo de Fisiología	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0.0	1	7		
8 Deutsche Universität Prag	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	7		
9 Masarykova Univerzita Brno	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	7		
10 Univerzita Komenského Bratislava	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	9		
11 Licentiate in Medicine, Surgery and Midwifery of the Apothecaries Society of London	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	10		
12 Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	11		
13 Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	15	0	0.0	2	12		
14 University of Bristol	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0.0	1	13		
15 University of London	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	0	2	100.0	1	14		
16 University of Sheffield	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0.0	1	15		
17 Université de Paris	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	17	10	7	41.2	2	10
18 Université de Strasbourg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	9	3	1	33.3	2	17
19 Université de Louvain	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	18		
20 Albert Ludwigs Universität Freiburg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	8	5	3	37.5	4	19		
21 Albertus Universitat Konigsberg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
22 Friedrich Alexanders Universität Erlangen	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
23 Friedrich Wilhelms Universität Berlin	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
24 Humboldt Universität	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
25 Hessische Ludwigs Universität Gießen	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
26 Johann Wolfgang Goethe Universität Frankfurt am Main	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	1	1	50.0	1	20		
27 Julius Maximilians Universität Würzburg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	10	5	5	50.0	4	25		
28 Julius Maximilians Universität München	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	10	5	5	50.0	4	25		
29 Rheinische Friedrich Wilhelms Universität Bonn	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	7	4	3	42.9	4	27		
30 Schlesische Friedrich Wilhelms Universität Breslau	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	28		
31 Universität Heidelberg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	2	0	0.0	2	24		
32 Universität Köln	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	10	5	5	50.0	4	25		
33 Universität Leipzig	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	5	3	2	40.0	3	26		
34 Vereinigten Friedrichs Universität Halle Witzenburg	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	7	4	3	42.9	4	27		
35 Westfälische Wilhelms Universität Münster	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	29		
36 National University of Athens	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	1	0	0.0	1	34		
37 Universidad Nacional de Guatemala	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	35		
38 Magyar Királyi I. Ferencz József Tudományegyetem Budapest	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	1	0	1	100.0	1	37		
39 Magyar Királyi Pázmány Péter Tudományegyetem Budapest	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	2	2	0	0.0	1	38		
40 Magyar Királyi Pázmány Péter Tudományegyetem Budapest	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	0	8	1	11.1	7	39		

IRELAND		1 0		0 1		1 0		2 2 0 0 0 2 40		1 0 1 100 0 1 41	
Faculty of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland											
National University of Ireland											
ITALY											
11 Regina Università di Bologna	0 1			0 1		0 2		9 5 4 44 2 42			
12 Regina Università di Bologna				1 0		3 1 0		2 0 2 100 0 2 41			
13 Regina Università di Bologna				1 1		1 1		4 0 2 7 100 0 2 40			
14 Regina Università di Bologna				0 1		0 2		4 0 2 7 100 0 2 40			
15 Regina Università di Bologna	0 1	1 0		0 1		0 2		31 17 20 50 0 0 41			
16 Regina Università di Bologna				1 0		1 0		1 1 0 0 0 1 48			
17 Regina Università di Bologna								1 0 1 100 0 1 49			
JAPAN		0 1									
Kyushu Imperial University Medical College, Kyushu											
MEXICO											
18 Instituto Científico y Literario y Médico de México								1 0 1 100 0 1 40			
19 Universidad Nacional Autónoma de México								1 0 3 3 0 0 0 2 41			
NETHERLANDS		1 0		1 0				1 1 0 0 0 1 52			
20 Rijks Universiteit te Leiden				1 0				1 1 0 0 0 1 53			
21 Universiteit van Amsterdam				1 0				1 1 0 0 0 1 54			
NORWAY											
22 Universitetet i Oslo				1 0				2 1 1 70 0 2 60			
23 Universitetet i Trondheim				1 0				2 1 1 50 0 1 50			
ROMANIA		1 1						2 1 1 50 0 1 50			
24 Universitatea de Medicina si Farmacie din Cluj								1 1 0 0 0 1 57			
SCOTLAND											
25 The University of Edinburgh School of Medicine				1 0				3 3 0 0 0 2 58			
26 The University of Glasgow School of Medicine				1 0				18 10 2 11 1 5 9			
27 The University of Aberdeen School of Medicine				1 0				2 2 0 0 0 2 60			
28 The University of Dundee School of Medicine				1 0				2 1 1 50 0 1 61			
29 The University of St. Andrews School of Medicine				1 0				14 11 1 7 1 7 62			
30 The University of St. Andrews School of Medicine				1 0				12 12 0 0 0 3 63			
31 The University of St. Andrews School of Medicine				1 0				22 21 1 4 2 1 64			
SOUTH AFRICA		1 0						1 1 0 0 0 1 65			
32 University of Cape Town								1 0 1 100 0 1 66			
SPAIN		0 1									
33 Universidad Central de España				1 0				2 1 1 50 0 1 67			
34 Universidad de Valencia				1 0				0 1 1 50 0 1 68			
35 Universidad de Valencia				1 0				10 7 3 0 0 3 69			
36 Universidad de Valencia				1 0				2 2 0 0 0 2 71			
SYRIA		1 0						1 1 0 0 0 1 72			
37 Université de St. Joseph Beyrouth				1 0				2 1 1 50 0 2 73			
USSR		1 0						2 1 1 50 0 2 74			
38 Moscow Medical Institute				1 0				2 1 1 50 0 1 75			
39 Moscow Medical Institute				1 0				1 1 0 0 0 1 76			
40 Moscow Medical Institute				1 0				1 1 0 0 0 1 77			
YUGOSLAVIA		1 0						1 1 0 0 0 1 77			
41 Medicinska Akademija, Univerzitet u Zagrebu				1 0				1 1 0 0 0 1 77			
Totals		31 3 6 3 10 3 1 2 32 18 7 2 7 2 21 213		1 0 1 14 3 1 8 1 1 2 1 1 1 5 437							
Totals—Unimedes—Pescud		24 3 3 0 2 1 1 10 7 5 2 5 1 18 143		1 5 1 14 3 1 7 0 1 2 1 1 1 4							
Totals—Unimedes—Pescud		7 0 1 0 1 1 0 1 10 11 2 0 2 1 3 82		0 1 0 0 0 1 1 0 0 0 0 1 1							
Percentage Failed		27 0 0 107 0 0 100 33 0 0 50 50 0 11 28 0 0 75 0 50 143 34 0 0 107 0 0 0 0 12 5 100 0 0 0 0 0 0 20 0									
Percentage Failed		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30									

(CONTINUED FROM PAGE 1487)

abroad who apparently plan to return to the United States to practice. Graduates of faculties of medicine abroad examined for licensure in 1935 are presented in table 13. These represent both American and foreign born physicians. Seventy-seven medical schools of nineteen European, four Latin American and three countries in Asia were represented. There were 437 examined, of whom 302 passed and 30.9 per cent failed. The following tabulation of the number examined in six years and the percentage failing is of interest:

	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	302	30.9

In addition to the figures given, a number are periodically licensed in New York without examination—by endorsement of their foreign credentials which are equivalent to licensure in this country. In 1935, sixty-nine were so registered in New York.

The increase in the number examined in 1935 represents mostly the Americans who began the study of medicine in 1930. In 1933 the Federation of State Medical Boards adopted a resolution to the effect that no student matriculating in a European medical school subsequent to the academic year of 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals, and graduation from a European medical school after four academic years of attendance, and further submits evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located. This policy of the federation has been made effective by individual action on the part of the state licensing bodies and the National Board of Medical Examiners and will have its desired effect in the future.

In 1934 the Federation of State Medical Boards passed a resolution recommending to its constituent boards that, until adequate information is available, these boards deny graduates of foreign medical schools admission to the licensure examination. However, such candidates as has just been mentioned, were examined in thirty states.

Two years ago the governments of many European countries sent representatives to this country to discuss appropriate measures for dealing with students from the United States. By the raising of entrance requirements, reduction in enrolment and careful scrutinizing of credentials, the number studying abroad should be reduced. During 1935, however, graduates of foreign medical schools were examined in thirty states, the greatest number, 243, having been examined in New York, of whom 35 per cent failed. The next highest figure, thirty-two, were examined in Maryland, of whom 50 per cent failed.

In table 12 are assembled figures showing the standing during the six year period 1930-1935 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1935. One hundred and thirty schools and eight of the licensing corporations of Great Britain were represented. During the five year period (1930-1934) 1,012 were

examined and 437 in 1935. The largest number examined represented the Regia Università di Napoli, 118, of whom 65.3 per cent failed, the Universität Wien in the five year period was second, seventy, of whom 31.4 per cent failed, while there were fifty-seven from the University of Edinburgh, with 8.8 per cent of failures. A study of the percentage failed is of interest. Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various states he is recorded as such for a given year.

## BASIC SCIENCE BOARDS

A certificate in the basic sciences is one of the prerequisites for licensure in nine states and the District of Columbia. In the majority of instances this certificate is obtainable after examination. Boards for the certification of candidates functioned during 1935 in Arizona, Arkansas, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin. The newest addition to this group is that of Iowa, whose basic science board operated for the first time in 1935. Statistics based on the number of candidates certified in 1935, and those who failed to secure this certification, together with the totals for other years, are included in the accompanying tabulations.

In table 1 will be found the subjects in which examinations were conducted in the respective states and the District of Columbia.

TABLE 1—Subjects of Examinations

	Examinations Required in						
	Anat- omy	Bacteri- ology	Chem- istry	Diag- nosis	Hy- giene	Pathol- ogy	Physi- ology
Arizona	+	+	+		+	+	+
Arkansas	+	+	+			+	+
Connecticut	+			+	+	+	+
District of Columbia	+	+	+			+	+
Iowa	+	+	+		+	+	+
Minnesota	+	+	+		+	+	+
Nebraska	+	+	+		+	+	+
Oregon	+		+		+	+	+
Washington	+		+		+	+	+
Wisconsin	+			+		+	+

In table 2 is given the year in which the basic science law in each state was enacted and figures showing the number in the various groups who were examined, passed and failed, in 1935. There were 956 candidates examined by nine boards. Of this number 882 were doctors of medicine and medical students (referred to hereafter as physicians), forty-seven osteopaths, twelve chiropractors, and for fifteen it was not possible to determine what profession they represented. In applying for a basic science certificate, it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder have been placed in the unclassified group. Of the physicians examined, 13.7 per cent failed, 42.6 per cent of the osteopaths failed, 83.3 per cent of the chiropractors and of those unclassified 73.3 per cent failed. There were 761 physicians who passed, twenty-seven osteopaths, two chiropractors and four unclassified. Minnesota examined the largest number, 228, of whom 29 per cent failed, while Wisconsin examined 161 and had 3.7 per cent failures. The District of Columbia, on the other hand, examined only thirty of whom 26.7 per cent failed. Nebraska examined 121 and had 24.8 per cent failures.



Of osteopaths Minnesota examined the highest number, fifteen Washington and Wisconsin each examined ten, Connecticut six, Oregon four and Nebraska two. Chiropractors were examined in Washington (seven) Connecticut (two), while one each was examined in Arizona, Minnesota and Wisconsin. Of the total number of applicants examined, 794 passed and 162 17 per cent, failed.

TABLE 2—Applicants Examined—1935

Year	Examined	Physicians or Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
		P	F	P	F	P	F	P	F				
Arizona	1933	40	1	0	0	0	1	0	2	44	40	4	9.1
Arkansas	1929	47	9	0	0	0	0	0	0	56	47	9	16.1
Connecticut	1925	100	1	6	0	1	1	0	1	110	107	3	2.7
District of Columbia	1922	22	8	0	0	0	0	0	0	30	22	8	26.7
Iowa	1935	0	0	0	0	0	0	0	0	0	0	0	0.0
Minnesota	1927	153	32	6	9	0	1	3	4	218	162	56	25.8
Nebraska	1927	91	26	0	2	0	0	0	0	121	91	30	24.8
Oregon	1923	77	11	4	0	0	0	1	3	96	82	14	14.6
Washington	1927	83	10	4	6	1	6	0	0	110	88	22	20.0
Wisconsin	1925	148	1	7	3	0	1	0	1	161	133	28	17.4
Totals—Examined		852		47		12		15		926			
Totals—Passed		761		27		9		4		794			
Totals—Failed		121		20		10		11		162			
Percentage—Failed		13.7		42.6		83.3		73.3					17.0

The number of certificates granted by examination, reciprocity and endorsement are listed in table 3. A total of 794 certificates were granted after examination, of which 761 were issued to physicians, twenty-seven to osteopaths, two to chiropractors and to four who were unclassified. There were ninety-six candidates certified without examination, by reciprocity or endorsement consisting of ninety-two physicians and four osteopaths. Minnesota accepted the greatest number without examination, forty-six all of whom were physicians, while Wisconsin registered twenty-two physicians and four osteopaths.

TABLE 3—Certificates Issued by Examination, Reciprocity and Endorsement—1935

	Examination				Reciprocity and Endorsement				Registered
	Physicians or Medical Students	Osteopaths	Chiropractors	Unclassified	Physicians	Osteopaths	Chiropractors	Unclassified	
Arizona	40	0	0	0	40	0	0	0	30
Arkansas	47	0	0	0	47	0	0	0	36
Connecticut	100	6	1	0	107	0	0	0	107
District of Columbia	22	8	0	0	30	0	0	0	22
Iowa	0	0	0	0	0	0	0	0	0
Minnesota	153	6	0	0	159	46	0	0	205
Nebraska	91	0	0	0	91	12	0	0	103
Oregon	77	4	0	1	82	2	0	0	84
Washington	83	4	1	0	88	0	0	0	88
Wisconsin	148	7	0	1	156	22	4	0	182
Totals	761	21	2	4	794	82	4	0	880

Table 4 shows the number of candidates examined and certified from 1927 to 1935 inclusive. In 1935, 13.7 per cent of physicians failed as compared with 55.4 per cent of other practitioners. In 1928 when five boards were functioning there were 646 physicians examined, of whom sixty or 9.3 per cent failed and fifty-nine other practitioners of whom twenty-eight, or 47.5 per cent failed. In 1935 853 physicians and thirty-seven other practitioners were certified. During the nine year period a total of 5,939 physicians were examined of whom 11.3 per cent failed and 595 other

practitioners of whom 51.6 per cent failed. During this period 784 physicians were certified without examination, while only forty-two other practitioners were so registered.

Altogether, 6,384 certificates have been issued by basic science boards since 1927, of which 6,054 were granted to physicians and 330 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of other practitioners appearing for examination and licensure was very considerable and was growing.

TABLE 4—Total Candidates, 1927-1935

Year	Number of Boards	Physicians or Medical Students				Other Practitioners			
		Examined	Passed	Percentage Failed	Endorsement	Examined	Passed	Percentage Failed	Endorsement
1927	5	305	279	26.6	26	305	133	55.4	172
1928	5	646	586	9.3	19	605	59	47.5	0
1929	7	668	610	8.7	75	683	66	33.0	0
1930	7	683	606	11.5	104	710	78	48.0	4
1931	7	680	586	13.8	130	716	107	59.0	0
1932	7	657	590	10.2	93	688	78	44.0	12
1933	8	601	527	12.3	117	644	69	30.0	10
1934	9	815	725	10.0	123	848	51	26.0	11
1935	10	882	761	13.7	62	853	74	33.0	4
Totals		5,270	4,669	11.3	784	6,054	595	51.6	42

The basic science board seems desirable in states having a multiplicity of examining and licensing boards. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

## NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was organized in 1915 and conducts examinations and awards successful candidates a certificate, which has come to be regarded as an adequate qualification for the practice of medicine. Since 1922 its examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical oral examination. Data are presented in the following paragraphs regarding the examination and the issuance of certificates to the latter group and include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplications, and also of those certified or failing of certification. Figures taken from compilations not reproduced here are also discussed. Similar data have been presented in the State Board Number of THE JOURNAL for eighteen years.

Four examinations were held in parts I and II during 1935 at which 1,264 and 689, respectively, were examined. In part I, 785 passed and 69, 8.1 per cent, failed, while in part II, 620 passed and 69, 10.0 per cent, failed. There were 410 who took incomplete examinations in part I. This examination is arranged for candidates taking part I at the end of their second medical year, who are attending schools the third year curriculum of which includes courses in one or two sub-

jects of part I. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Also listed under this heading are those who wish to spend some additional time on one or two subjects. Incomplete examinations were not included when computing percentages, since they represent neither a candidate eligible for certification nor a failure.

Since 1922, a total of 12,943 examinations have been given in part I and 6,634 in part II. From 1922 to 1935 inclusive, 8,302 individuals have been successful in passing part I, and 5,915 in passing part II. These figures include 3,293 who took incomplete examinations in part I and thirty-three in part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the fourteen year period since 1922 there were 1,348 failures in part I, 14.0 per cent, and 686 in part II, 10.4 per cent.

The results of examinations in part III for the fourteen year period 1922 to 1935 inclusive are presented in table 1. In 1935, 598 were examined as compared with twenty-eight in 1922. There has been a steady

TABLE 1—Examinations in Part III

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922	23	23	0	0.0
1923	76	70	1	1.3
1924	120	114	6	5.0
1925	217	206	11	5.1
1926	255	243	12	4.7
1927	294	272	22	7.5
1928	322	306	16	5.0
1929	371	336	15	4.0
1930	419	400	19	4.5
1931	477	419	18	4.1
1932	549	521	28	5.1
1933	532	527	5	0.9
1934	531	545	3	0.6
1935	598	578	20	3.3
Totals	4,799	4,573	226	4.7

increase of approximately fifty each year since 1925. Of the number examined in 1935, twenty, or 3.3 per cent failed. The highest percentage of failures was in 1927 when 294 were examined and twenty-two, 7.5 per cent, failed. During 1935, 578 were granted certificates. In fourteen years, 4,799 were examined, of whom 4,573 were granted certificates and 226, 4.7 per cent failed. Here again a candidate having failed may subsequently receive a certificate. Incomplete examinations were taken for diverse reasons in 1935 by forty-eight candidates. No mention is made of these in the statistics.

From 1915 when the board was organized, up to and including 1935, 4,840 certificates have been granted.

The figures in table 2 represent the number of individuals examined during any one year. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1935 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,367 who took the examination of the National Board of Medical Examiners during 1935 as compared with 525 in 1922. A total of 17,370 passed one or more of the examinations in the fourteen years shown and 2,008 or 10.4 per cent failed. Incomplete exami-

nations have been taken by 3,137 individuals, many of whom have since received certificates.

Diplomates licensed on the basis of their credentials in the United States have increased from two in 1917 to 442 in 1935, 3,021 having been so licensed since the National Board was created. A total of 4,840, however, have received the certificate of the National Board. In 1935, 442 diplomates were registered on the basis of credentials in thirty-nine states and two territories.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of the following forty-three states and four territories:

Alabama	Illinois	Nebraska	Puerto Rico
Alaska	Indiana	Nevada	Rhode Island
Arizona	Iowa	New Hampshire	South Carolina
Arkansas	Kansas	New Jersey	South Dakota
California	Kentucky	New Mexico	Tennessee
Canal Zone	Maine	New York	Utah
Colorado	Maryland	North Carolina	Vermont
Connecticut	Massachusetts	North Dakota	Virginia
Delaware	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	West Virginia
Hawaii	Missouri	Oregon	Wyoming
Idaho	Montana	Pennsylvania	

Some of these boards, however, have additional requirements.

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is also recognized in South Africa, Spain, Syria and Turkey.

Five medical schools now require their students to pass either part I of the National Board examination or parts I and II. Several other schools give their students the option of taking the National Board examination or the school's comprehensive examination. In one or two schools, passing the board's examination in part I excuses the candidate from a portion of the final comprehensive examination given at the end of the fourth year.

Because many graduates of European universities and medical schools are applying for internships in this country, the Council on Medical Education and Hospitals at a meeting in February voted "that when suitable graduates of class A schools of the United States and Canada are not available, hospitals approved

TABLE 2—Parts I, II and III Excluding Duplications

	Total Examined	Passed	Incomplete	Failed	Percent of Failed
1922	525	381	58	86	16.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	100	126	11.9
1927	1,248	947	142	159	14.4
1928	1,470	1,101	211	118	9.7
1929	1,412	1,250	119	124	8.8
1930	2,044	1,547	392	100	10.0
1931	2,218	1,632	410	166	9.7
1932	2,341	1,849	300	137	6.9
1933	2,277	1,806	250	191	9.6
1934	2,261	1,802	229	10	0.7
1935	2,367	1,800	408	199	6.6
	22,515	17,370	3,137	2,008	10.4

for intern training may accept graduates of European schools who have passed parts I and II of the examinations of the National Board of Medical Examiners."

Examinations in parts I and II are held at class A medical schools in any center where there are five or more candidates available, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 25 1936

## THE STATE BOARD STATISTICS

The annual report on the examination and licensure of physicians in the United States for the year 1935 appears in this issue. The statistical tables and the special summaries show conditions at present and indicate trends over many years. In 1935, 7,887 applicants were licensed, of these, 5,707 were licensed by examination and 2,180 by endorsement of credentials, 5,500 licentiates were added to the medical profession and some 4,000 died. The net gain was about 1,500.

Failures to pass examination seem to be increasing. In the past five years the total number of physicians examined per year has risen from 5,608 to 6,426. The number of failures rose from 348, or 6.2 per cent, to 585, or 9.1 per cent. The number that failed to pass in 1935 was larger than in any year since 1925.

The graduates of unapproved medical schools of recent and previous years were granted examination in several states, conspicuous among which were Illinois, which registered sixty-seven such graduates, Massachusetts twenty-six, and Ohio sixteen.

The requirement of a hospital internship by state boards began in 1914. At the present time nineteen boards have such a requirement. Because many graduates of European universities and medical schools are applying for internships in this country, the Council on Medical Education and Hospitals at a meeting in February voted that 'when suitable graduates of class A schools of the United States and Canada are not available, hospitals approved for intern training may accept graduates of European schools who have passed parts I and II of the examinations of the National Board of Medical Examiners.'

The number of physicians granted licenses to practice medicine and surgery without examination in the states and territories was 2,165. These persons presented to the various licensing boards licenses from other states and foreign countries or the certificate of one of the government services or the National Board of Medical Examiners or other credentials. Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement relations with any state.

## GRANULOCYTOPENIA, MALIGNANT NEUTROPENIA OR AGRANULOCYTOSIS

In 1922 Schultz<sup>1</sup> described a condition of the hematopoietic system characterized by severe leukopenia and the disappearance of granulocytes from the peripheral blood. This was accompanied by a necrotic process of mucous surfaces, principally of the mouth and pharynx, profound sepsis, and death in from two to seven days. The onset of the disease is sudden, with prostration and a rapid rise in temperature, which persists throughout the course. Redness and swelling of the pharyngeal mucous membrane is rapidly followed by deep ulcerations, which are covered with a dirty gray membrane. Only a moderate enlargement of the regional lymph nodes is associated. Examination of the blood reveals characteristic alterations in the leukocytes. Leukopenia and granulocytopenia progress in many cases to a total disappearance of granulocytes from the peripheral blood. The total number of lymphocytes and monocytes may remain normal, be increased or, more often, diminish because of the general diminution in the number of the white cells. Their percentage relationship, however, is always increased at the expense of the disappearing granulocytes. The bone marrow as obtained by puncture or at postmortem is pale. In histologic preparations of the marrow, diminution of morphologic elements is observed with a diminution or total absence of granulopoiesis. The surviving cells belong to the lymphoid type. The megakaryocytes and the erythropoietic cells appear normal. Postmortem studies likewise reveal numerous bacterial emboli obstructing the blood vessels, necrotic processes of the mucous surfaces of the mouth, pharynx, gastro-intestinal tract, liver and spleen, and the absence of suppurative processes. The pathologic alterations described are believed to be due to failing or arrested granulopoietic function of the bone marrow.

This disease has occurred with greatest frequency in the United States and in Germany, where it was first described. It has been seen predominantly in women (from 80 to 90 per cent) of middle age of the better social status and shows a peculiar predilection for members of the medical group.

Three hypotheses were promptly advanced as to the etiology of this condition. The first considered sepsis as the primary cause and the blood changes and the necrotic lesions of mucous membranes as secondary. The second hypothesis considered the characteristic lesions of the mouth and the pharynx the primary lesion, giving rise to sepsis and granulopoietic disturbances. The third hypothesis considered the alterations in the granulopoietic organs the primary and essential cause, and the septic state and the necrotic lesions as the result of loss of the defense mechanism in an organ deprived of its granulocytes. The last hypothesis has been accepted by most investigators,

<sup>1</sup> Schultz, Werner. *Leber eigenartige Hal-erkrankungen*. *Deutsche med. Wchnschr.* 15: 1492 (Nov. 3) 1922.

although the nature of the depressing agent remained largely undetermined. Bacteriologic studies, as well as animal injection experiments, failed to demonstrate a specific organism. Various investigators were able to produce agranulocytic changes followed by sepsis, by administration of toxic substances such as benzene,<sup>2</sup> neoarsphenamine,<sup>3</sup> bismuth compounds and gold preparations. Kracke and Parker<sup>4</sup> collected from the literature reports of 173 cases of agranulocytosis following the ingestion of drugs. Of this group, 153 cases followed the use of aminopyrine. According to these authors, four salts can be incriminated as etiologic factors. These, in the order of their importance, are aminopyrine, dinitrophenol, gold salts and organic arsenic compounds. Endocrine influences and constitutional predisposition, as well as a true allergic response, were advanced to explain why a relatively small number of persons, in view of the wide use of aminopyrine, should react to this drug with damage to the hematopoietic system. The exact mechanism of drug action requires further elucidation.

Since Schultz first described the disease, our concept of it has undergone a number of modifications. The occurrence of symptomatic agranulocytosis, due to a definite cause in each case, suggests that the condition is possibly not an independent clinical entity but a syndrome. In addition to the type in which leukopoiesis alone was disturbed, there were observed types in which there existed a combination of disturbances of leukopoiesis with that of disturbance of erythropoiesis or thrombopoiesis. Types were observed in which granulocytopenia was combined with a grave anemia of the aplastic type, types combined with thrombocytopenia and hemorrhagic diathesis, and, finally, a form of hemorrhagic aleukemia described by Frank in 1925. Many cases exhibit a slow development as well as recurrences. Furthermore, a number of patients have recovered, although the prognosis, especially of the essential variety, remains grave (mortality of about 92 per cent). A favorable prognosis can be predicated on the appearance of eosinophils in the blood, a progressive increase of leukocytes and, in particular, on the appearance of granulocytes of various degrees of maturity of myelocytes and of myeloblasts.

The therapy of the disease is far from satisfactory. Pentnucleotide was introduced in 1929 in the hope that it would stimulate leukocytosis. Jackson<sup>5</sup> believed it to be efficient when given in large enough doses, not less than 40 cc daily. Kracke and Parker did not see any benefit from it. Parenteral administration of liver extracts has favorably influenced the course of the disease, according to recent reports. It is questionable

whether transfusion of blood will have a stimulating effect on leukopoiesis. At the present state of our knowledge it would appear wise to combine all the experimental therapeutic agencies that have been mentioned.

## CHEMISTRY OF VITAMIN E

One by one the physiologically important natural constituents of plant and animal material are yielding their chemical identities to the exhaustive researches of the organic chemist. The preparation in pure form and the identification as a chemical entity of any substance of physiologic significance in the organism has invariably been followed by rapid accumulation of information suggesting its functions in the body. It is only necessary to recall the more recent investigations on cevitamic acid, or vitamin C, as an illustration of this point.

All the well established vitamins, and some of the less definite suggested food accessory factors, have received attention from the chemist. The efforts in some cases have led to the isolation of crystalline substances capable of producing physiologic responses known to be characteristic for the particular vitamin and therefore supporting the conclusion that the isolated material is identical with the vitamin itself. In several instances, for example in the case of vitamins A, B<sub>1</sub>, B<sub>2</sub> (G), C and D, the organic chemist has established, with a considerable degree of certainty, the chemical formulas and structures of the particular vitamin. Relatively less attention has been given by the chemist to vitamin E, the food accessory substance essential to the rat for the normal bearing of the young. However, three laboratories—Evans and his collaborators at the University of California, Olcott and Mattill at the University of Iowa, and Drummond and his group at University College, London—have expended considerable effort in attempts to concentrate, isolate and identify vitamin E. The goal appears to be near at hand.

In a recent communication<sup>1</sup> the California group reports the successful isolation from wheat germ oil of an alcohol having the properties of vitamin E. The material was obtained as an oil, and it exhibited sporadic vitamin E activity in doses of 1 mg. A single dose of 3 mg. permitted the regular production of normal litters under nutritive conditions not ordinarily favoring normal gestation. The investigators propose for this alcohol the name "α-tocopherol," from the roots "tokos" meaning childbirth, "phero" to bear and the ending "ol," indicating an alcohol. Two crystalline derivatives of this physiologically active oil were prepared, and the elemental analyses of these compounds indicate an empirical formula of C<sub>29</sub>H<sub>50</sub>O<sub>2</sub> for the vitamin itself. Two additional alcohols were also obtained as oils from the wheat germ concentrate, each of which proved to be isomeric with α-tocopherol. One

<sup>2</sup> Kracke R R. The Experimental Production of Agranulocytosis. *Am J Clin Path* 2: 11 (Jan) 1932.

<sup>3</sup> Kluver W. Appearance of Agranulocytic Symptom Complex as Result of Antisyphilitic Treatment with Arsphenamines and Bismuth. *Dermat Wehn chr* 101: 1118 (Sept 14) 1935.

<sup>4</sup> Kracke R R and Parker F P. The Relationship of Drug Therapy to Agranulocytosis. *J A M A* 105: 960 (Sept 21) 1935.

<sup>5</sup> Jackson Henry J. Agranulocytosis. *Ann Int Med* 9: 26 (Jul) 1935.

<sup>1</sup> Evans H M, Emerson O H and Emerson G A. *J Biol Chem* 113: 319 (Feb) 1936.

was physiologically inactive, the other appeared to have some vitamin E potency. The isolation of the vitamin itself in crystalline form and establishment of its chemical configuration should give some interesting insight to its role in the organism and to the mechanism of its activity.

### MEDICAL PROGRESS IN THE PHILIPPINES

In 1935 there were in the Philippines a total of 2,901 physicians for an estimated population of about 13,500,000. There was therefore one physician for every 4,700 inhabitants, or about twenty-one physicians per hundred thousand of the population. This compares with 126.6 physicians per hundred thousand of the population in the continental United States. A review of the past and present medical services in the Philippine Islands has recently appeared under the auspices of the local medical society.<sup>1</sup> Medical services are rendered by the Philippine government, private practitioners, private corporations, semigovernmental institutions and the United States government.

One way of measuring the efficiency of medical services is comparison of the mortality rates. This is a crude method and subject to numerous modifying factors, but it does give information. For many years there has been a steady decline in the mortality rates in the islands. From a rate of 39.7 during the Spanish regime it shot up to 50 from 1899 to 1903 and came down to 27.05 in 1904. Since 1904 there has been a gradual decline, except for 1918, and since 1921 it has been below 20 per thousand. This rate compares with a rate of 14.7 for the United States, 40 for China and 28 for Spain. It is still higher than the rate of the Anglo-Saxon countries, but, with the exception of Japan, the lowest of the oriental. It is also lower than the rates of Puerto Rico, Spain and Mexico.

Part of the high death rate has been due to infant mortality, largely infantile beriberi. The effectiveness of the campaign to reduce infant mortality is illustrated by the decrease in the infant death rate from 225 per thousand in 1904 to 146 per thousand in 1933.

Another important fact brought out by this report is the large share of credit due the private practitioners for the improved conditions. Of the 2,901 medical practitioners in the Philippines only about 745 are in the service of the Philippine government and about sixty-eight in the service of the United States government. There has been a considerable increase in the number of medical men in the Philippines so that the average age of the physicians is relatively low (38) and a high percentage are still, therefore, in the prime of life. While this is an advantageous factor, the report clearly shows that there is room for still further increase in the number of physicians and especially for

their better distribution. The number of hospitals also has increased from seventy in 1924 to 147 in 1934.

Fernando, who wrote the report, also points out that the remarkable improvement in health attained during the American regime in the Philippines has occurred with a high degree of cooperation between private practitioners and governmental agencies and that neither compulsory health insurance nor complete government practice of medicine has at any time been necessary. There seems to be no question that this improvement will continue, if judged by the constructive recommendations embodied in the report. The time-tested methods of medical progress are clearly shown not to have outworn their usefulness.

### Current Comment

#### FATE OF INJECTED ALUMINUM

The widespread modern use of cooking utensils made of aluminum has attracted interest in the question of the behavior of this metal in the animal body. As was stated in these columns a short time ago<sup>1</sup> there is no convincing evidence that aluminum in amounts in which it is likely to be consumed as a result of the use of aluminum cooking vessels has a harmful effect on the ordinary consumer, indeed, there is no definite proof of the absorption of this metallic element from the gastro-intestinal tract. However, that a small amount of aluminum gains entrance into the normal animal organism is indicated by the general finding of minute quantities of the element in various tissues. Questions logically arise regarding the fate of aluminum once it enters the animal body. If it is largely excreted, what is the pathway? If it is stored what effects may result from its presence? A number of investigations in which soluble aluminum salts have been injected into animals and subsequent analyses made of the tissues and excreta have been performed in order to answer these questions. In the most recent study of this type<sup>2</sup> a small amount of aluminum, as the chloride, was injected intravenously into dogs for long periods. Analyses of the tissues of these animals demonstrated that a small amount of the injected aluminum was stored, chiefly in the liver and spleen, and to a lesser extent in the kidney. Traces of the metal were present in various other tissues. Apparently most of the substance was promptly excreted in the urine and in the bile. No definite statement concerning toxic reactions in the experimental subjects was made. In another species, the rabbit, the continued intravenous injection of small amounts of aluminum was found to produce a profound anemia and pathologic changes in the kidneys and spleen.<sup>3</sup> Thus far a great mass of available evidence attaches little significance to small amounts of aluminum entering the human body by ingestion.

<sup>1</sup> Aluminum in Food. Current Comment J. A. M. A. 106:218 (Jan. 18) 1936.

<sup>2</sup> Ekeleth, D. F. and Myers, A. C. Studies on Aluminum. II. The Storage of Intravenously Injected Aluminum in the Dog. J. Biol. Chem. 113:467 (March) 1936.

<sup>3</sup> Seibert, F. P. and Wells, H. G. The Effect of Aluminum on Mammalian Blood and Tissues. Arch. Path. 8:239 (Aug.) 1929.

<sup>1</sup> Fernando, A. S. Medical Service in the Philippines. I. Philippine Islands M. A. 13:637 (Dec.) 1935.

## Association News

### THE KANSAS CITY SESSION

#### Alumni Dinners

Alumni dinners, in addition to those listed in the Kansas City Number of THE JOURNAL, have been arranged as follows

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL, Wednesday evening, May 13, Parlors A and B Fourth Floor, Kansas City Club, E H Trowbridge, chairman

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, Wednesday May 13, 6 30 p m, Florentine Room, Kansas City Club, Evan S Connell, chairman

#### Special Train Service to Kansas City

The Chicago, Milwaukee, St Paul and Pacific Railroad announces that the "Southwest Limited," a de luxe, air conditioned train, will leave Chicago from the Union Station daily beginning Sunday, May 10, at 7 30 p m, arriving in Kansas City at 8 a m. This train will carry special sleeping cars for the use of members of the American Medical Association attending the annual session at Kansas City. For reservations please communicate with Mr V L Hitzfeld, Assistant General Agent, Room 711, 100 West Monroe Street, Chicago

#### Association of Military Surgeons of the United States

The Association of Military Surgeons of the United States will have a dinner in the Francis I Room of the Hotel Baltimore on Tuesday, May 12. The speakers at the dinner will be General Robert U Patterson and Colonel Kent Nelson

#### American Board of Dermatology and Syphilology

A dinner for the diplomates of the American Board of Dermatology and Syphilology has been arranged for at the Hotel Kansas Citian on Wednesday, May 13, at 7 p m. Diplomates who have not made reservations are requested to notify at once Dr Charles C Dennie, 1524 Professional Building, Kansas City, Mo

### BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session

#### NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company

May 11, 4 30 p m "Nutrition and the Future of Man," by Dr James S McLester, President of the American Medical Association. Fifteen minutes

May 12, 4 p m Medicine Marching Forward. The regular dramatized program "Your Health" (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes

May 13, 12 noon An interview about the Scientific Exhibit with Dr Morris Fishbein. Fifteen minutes

#### COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System

May 11, 1 30 p m An interview with one or more distinguished foreign visitors by Dr Morris Fishbein. Subject to be announced. Fifteen minutes

May 15, 2 p m A news broadcast outlining the main events of the convention. Dr W W Bauer. Fifteen minutes

May 15, 8 45 p m Medicine Yesterday and Today. A dramatized program (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes

The hour given is central standard time, eastern standard time is one hour later, mountain time one hour earlier, and Pacific time two hours earlier. Daylight saving time in each locality is one hour later

### RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p m eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time, daylight saving time in each locality is one hour later) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast

**Red Network**—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF

**Pacific Network**—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSB, KTAR

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available

The next three programs are as follows

April 28 Infant Care W W Bauer M D

May 5 Maternal Care W W Bauer M D

May 12 Medicine Marching Forward W W Bauer, M D

### ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

DR FRED MOORE, Des Moines, Iowa, in the Chair

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Thirty Second Annual Meeting held in Chicago Feb 17 and 18 1936

(Continued from page 1497)

FEBRUARY 18—AFTERNOON

#### Swans Sing Before They Die

DR E P LYON, Minneapolis. I shall speak of some of the problems of medical education which I consider important and which I hope the future may solve. The first concerns the choice and admission of students. This involves a responsibility on the part of college officers which they have rarely sufficiently realized and faced. It predicates decisions on which the whole life and work of young men and women may depend, and in which the future standards of medical practice may be foreshadowed. That the job is not well done is manifest by the large proportion of failures. As a basis for this function we have first the record of the premedical scholarship marks. These come to our desks from some 700 colleges, including every type and grade of institution from the standpoint of facilities, staff and curriculum. The same thing is brought out by the Moss aptitude test. The average percental rank attained by those taking the test in some premedical colleges and universities is well above the mean. The average percental rank in some other colleges is markedly below the average for the country as a whole. This may be due in part to differences in teaching and length of training. But most educators are agreed that the prime factor is selection. Out of this comes the fact that the marking systems of different collegiate institutions are not comparable. The great question emerges. Can we get any better basis for admission than college grades, intelligence tests and interviews, for such as believe in that technique? At Minnesota an all-university committee has worked on this problem for two years. There is a subcommittee for each school and college. That for the medical school consists of three of our professors, several psychologists, ample statistical and clerical



help. An industrial process that recorded a 20 or 25 per cent rejection of imperfect parts in the manufacturing process would certainly be regarded as inefficient. If inevitably some of these imperfect parts slipped by the inspection and appeared in the finished product, managers and owners would be troubled. We medical educators should be concerned. Until we are surer about our raw material, more exacting in our inspections, more clear as to what our product should be the medical profession will average lower than it should in the great field test that goes on day by day in the fight for better health. School examinations need as close scrutiny as our choice of raw materials. We need a new or at least a tested and reliable technic of examination.

What is happening to our material outside college walls? One of the psychologists of our committee raised the question of medical fraternities in a new way. How is the performance of these groups in medical school in comparison with what it ought to be on the basis of premedical grades. Out of this comes the conclusion, that some fraternities do better and some worse than would have been expected. It is disquieting that we may have organizations among our students which actually have the effect of lowering the potential performance of their members.

Another feature which causes concern is the fact that medical education is in general restricted to those who have money. This fact means inevitably that some superior men cannot enter the medical profession and that the average standard is lowered thereby. The problem is real in every line of education. In a study of high school graduates in Minnesota, Dean J. B. Johnson of the Arts College estimates that there are perhaps 300 superior students a year in the high schools of the state who are unable to attend college because of lack of money. Under our system we can suggest nothing better than scholarships with a well organized arrangement for their distribution to the most able candidates. I firmly believe that at present ten million dollars would at no other point create such dividends of medical progress as in the search for and assistance of submerged superior ability.

In general I am favorable to increased requirements. But before the three year premedical course becomes embedded in the requirements of state boards I advocate that an alternative proposal be experimented with by some medical colleges. I would add another year to the medical course itself. I would transfer to the medical curriculum some of the courses now classed as premedical, such as organic chemistry, sociology and psychology. I would leave the minimum entrance requirement at two years of college as now, but the transfer described would permit of a wider sampling of college offerings in the direction of cultural background. I think the added medical year would enable faculties to plan a better balanced medical curriculum. I would begin anatomy, biochemistry, perhaps bacteriology in this year. But I would devote at least half the time to subjects now considered premedical. Psychology, adapted to medical students and thought of as the basis of mental medicine in the same way as anatomy and physiology are basic to physical medicine, would certainly be required and in the medical curriculum. I suggest that the objection of added expense be met by keeping the fee for this year lower than for the other medical years. I suggest further that limits of attendance be not so rigidly enforced and that this preliminary year be the real testing ground of fitness for continued medical study. Those familiar with the Toronto plan will recognize the similarities. The main argument is to secure for students a year earlier the immense motivation that comes from being a real medical student.

The question of overproduction of doctors is of the greatest importance. I contend that there are already too many doctors even if they were properly distributed and even if their services were available to all people neither of which contingencies is true or likely to be true under American conditions. In many years at a dean's desk I have watched the increasing difficulty and discouragement experienced by young doctors in earning a living. To say that the same condition exists in every profession does not help the situation. Last summer I had a conference with Professor Thunberg at Lund, Sweden. He showed me the letter setting the number of new medical students that may be received this year at the

Swedish universities—forty-four at Lund, fifty-six at Uppsala, 100 at Stockholm. "But who," I inquired, "makes the decision?" "The chancellor," replied Dr. Thunberg, "whose name is signed to this letter. We Swedes have confidence in him. He is in touch with all interests, including the medical profession. The accepted principle is to educate only as many doctors as the country needs. The decision of the chancellor is accepted by all." So far as I can see, the American Medical Association has made only a tentative approach to this problem. Let the elder statesmen add to their number such specialists as may be needed, sociologists, educators, population experts. Let them determine the facts. Bring the united wisdom of those interested to bear on the question. I think that the colleges would reduce the number of their medical students if requested to do so by such a commission.

#### Function of the Hospital in the Training of Interns and Residents

DR J. A. CURRAN, New York. This article appeared in THE JOURNAL, March 7, page 753.

#### The Laboratory of Pathology in the Small Hospital

DR HOWARD T. KARSNER, Cleveland. This article appears in full in this issue, page 1445.

#### DISCUSSION

DR A. S. GIORDANO, South Bend, Ind. Adequate laboratory facilities require ample room space. Requests for examinations, delivery of specimens and delivery of reports are time consuming, so that it is imperative that the clinical laboratory be centrally located. A basement or top floor location thus is expensive as well as inconvenient. Should routine laboratory examinations be delegated to interns instead of supervised technicians? My experience leads me to answer no. A well trained technician will render far superior and more uniformly dependable service. However, since it is necessary that interns acquire practical training in laboratory technic, it is recommended that they be required to do only the routine laboratory work on patients in their care, but the technician should check the results. The third point involves a fundamental principle, namely, that the function of the college is to teach and conduct research. The question is, Should teachers of pathology engage in the extracollegiate practice of laboratory medicine? I should like to submit reasons for answering this in the negative. I have the highest regard for the author as a teacher and scientific investigator. The proposed plan, however, would not go far as a universal solution of the problem. This plan has worked satisfactorily in Cleveland, but is not the credit due to Dr. Karsner's personality, integrity and sympathetic understanding of the problem? How few are the localities where all of these circumstances may be duplicated and if the operation of the plan were not maintained on an exceptionally high plane abuses would creep in. By the same logic the medical college should also send their other young teachers in surgery and in medicine to help out in the small hospital. What has happened elsewhere? The teaching staff has deviated from its primary objective and has engaged in what amounts to a mail order house type of practice of pathology. This system has tended to discourage local hospitals from pooling their local resources thus supporting in their own community a well staffed central laboratory, the personnel of which is available on a moment's notice to render efficient personal service. In my community we have a central laboratory operating branches in each of three smaller hospitals totaling about 250 beds. In addition we provide laboratory service to the local physicians. The cost to patients compares favorably with that in larger institutions and yet the plan affords a profit to the participating hospitals as well as to the organization that serves them. This plan is applicable on a national scale. It can be made to solve the problem more adequately, since it removes the teaching institution from the sphere of extramural practice. Moreover it removes from the hospital the temptation to sell to the public a branch of specialized medicine. It gives to the pathologist an independent sphere of operation through which he may develop a true sense of individual responsibility to the patient and a greatly needed service to his colleagues not only by examining the surgical specimens but also by the performance of postmortems, the daily supervision of all the laboratory tests

and above all the interpretation of these tests in the light of the clinical picture. The American Society of Clinical Pathologists, at its annual meeting in Kansas City, will conduct a symposium on this subject. The great need in the problem of laboratory service for the small hospital lies in the development of centralized local units operating in nearby branches and independently of teaching laboratories. The excess energies of the latter may very well be directed toward training the personnel to man these centralized units. It is something to reflect on that the number of teaching pathologists who are prepared to give advanced instruction in pathology is decidedly limited. To bring this point home, we are faced each year with the problem of finding some one whose breadth of knowledge and experience qualifies him to conduct a seminar in cellular pathology.

DR NORBERT ENZER, Milwaukee. I work as a director in a small hospital. In a laboratory servicing a hospital whose daily average of occupancy is from 100 to 120 patients, we provide a laboratory service covering all types of investigation, with the exception that we do not have available animal facilities. We have a staff of technicians and there is one director. I make this description in order to make significant the statement that the laboratory maintains itself and even does better. The question that came to mind when I heard Dr Karsner's presentation was this: He is concerned about servicing the small hospital at a cost not prohibitive to the small hospital. My answer is that, if pathology is practiced as other branches of medicine are practiced, the hospital need not be concerned in the cost of this thing at all. Fees are derived from patients. Patients are charged for everything that is done in a laboratory sense. I would not hesitate to ask the question, then, of these small hospitals who are receiving what I would consider not adequate laboratory direction. What is the revenue received by the hospital from laboratory fees? and also To whom does it go? Pathology is the practice of medicine, and only those licensed to practice medicine can direct laboratories and do such work. Then no one can participate in the benefits of that practice except those who are practicing it, and for those it shall be deemed their judgment as to how it shall be distributed in terms of cost of maintaining those laboratories. If it is accepted that these laboratories are operated on a fee basis, there is hardly a hospital in which the occupancy will run from 100 to 150 patients that cannot afford to have adequate and even progressive laboratory service, under adequate laboratory direction. Now this question of full time. An unfortunate result of that has been that pathologists have been paid and their services evaluated whether or not they gave full time or part time. Not the service was paid for, but the time. That is not in keeping with high professional standards.

DR W D FORBUS, Duke University, N C. I think that an inadequate definition of what a small hospital is has been given. I have been faced with the problem during the last three years of working out some solution for a group of hospitals ranging from fifteen to, let us say, sixty-five beds. It seems that the scheme which has been put forth as adequate for what I should call a large hospital might experience some difficulty in being applied to what I know, in my environment, to be a small hospital. Perhaps that will be taken into consideration in further discussion of the problem.

DR HOWARD T KARSNER, Cleveland. The hospital laboratory certainly should be centrally located, and I further agree that the basement is no place for it. Dr Forbus recognizes that it is impossible to draw a sharp line between what is a large hospital and what is a small hospital. One may say that a hospital of 150 beds, most of which are general beds, is a large hospital. One may say that a hospital of 150 beds, most of which are maternity beds, is a small hospital. While I recognize the fact that there may be limits to this plan, I simply have proposed it as a general principle of operation, to be adopted wherever possible. Dr Enzer's discussion is of the utmost value as representing a point of view that is different from what is expressed in the paper in this sense. I have referred to hospitals which, by virtue of various limitations, are unable to have as pathologist a man who will furnish the major part of his time and attention to that hospital. There are hospitals in which it is possible to have as pathologist a competent well trained man but in many communities that

is not possible, and the problem then is to service that hospital with a part time man. Dr Enzer refers to the matter of a laboratory supporting itself. I think that in the operation of the first class hospital the objective of the laboratory is to supply service to the hospital. Whether that leads to self support or not is beside the point. That is up to the administrator of the hospital. There is, however, a danger inherent in this sort of thing, and that is the exploitation of the laboratory and the director for the benefit of the general funds of the hospital, a thing which should be decried. Where the centrum happens to be a matter of relatively small importance, it is who the centrum is that is important, and whether that "who" is a man operating a private laboratory or a man who is in a university laboratory is unsequential. Certainly the interests of the patient should never be subordinated to the interests of the hospital as a whole. I think the training in the modern medical school gives the graduate a comprehensive view of the place of the clinical laboratory in matters of diagnosis and treatment. I recognize that the house officers need guidance in the performance of the test. That should be provided by the pathologist in the hospital laboratory. To turn over to young graduates the entire responsibility for the clinical laboratory examinations would provide nothing in the way of his education and training. I think his supervision should be in the hands of the pathologist in charge rather than of the technician. This particular matter should be evaluated in the broadest way, giving to the education of the house officers a place of significance and promise not only as regards laboratory work but as regards all the activities of his training. The plan proposed certainly places responsibility on the pathologist who is in charge of the small hospital, but that responsibility is shared by seniors who have greater experience and longer training. Dr Giordano spoke of the mail order type of business, and we should discourage that. We must recognize, however, that private physicians may at times be aided by a service of this kind, provided it is on a consultation basis, not merely sending in a piece of tissue and a request for diagnosis, whether the place the tissue was taken from, the history of the case, the diagnosis and name of the patient is appended or not. We do nothing of that sort. We must know about the patient. The idea that a student of pathology should be occupied only in teaching and research is subversive to the best interests of pathology and medicine. Pathology in a university is the stepping stone between the so called preclinical and clinical divisions, more closely allied to the clinical divisions than to the preclinical divisions. As a university subject it represents an intensely practical field. Where it is proper teaching, it should require attention to the clinical aspects, wherever possible. The university department that is actively engaged in doing practical work in pathology serves the educational interests of the students to greater advantage than if it occupies the place of a so called preclinical science. Granted it should be engaged in research, there are undoubtedly contributions made to investigations which would not take place if the department were divorced from practical work. I do not mean to say that there are not good departments of pathology in our universities which have little association with hospitals. I think, however, that the heads of those departments recognize that they could do better by the students and the staffs if they had close hospital connections than they are able to do without such connections.

#### Use of the Outpatient Department in Medical Education

DR W McKIM MARRIOTT, St Louis. This article appears in full in this issue, page 1442.

#### DISCUSSION

DR ROBERT W KEETON, Chicago. Some of the organization requirements as they apply to the general medical clinic may be summarized. 1 It is obvious that dispensary patients present complex problems and that the opportunities for solving them are smaller than in hospital patients. Hence the clinic should be manned by the most mature students. This means seniors. 2 The dispensary time should furnish the student his opportunity to begin the practice of medicine. He should learn here an approach to the patient and a method of examining him that he will use later in his office. This means that he must be interested in solving this particular patient's prob-

lems It is not important for him to be running from one examining room to another looking at interesting cases This breadth of knowledge is to be obtained elsewhere in the curriculum 3 Some form of an appointment system for patients must be introduced, so that the student will not be rushed in doing his work and yet will have patients returning to him with regularity 4 Patients must be assigned to the student and he must be their physician until he transfers them to an attending man Until the attending man receives the case he acts solely in a consulting capacity In the order of their importance, the medical school's responsibilities to medical education are 1 To provide facilities by which students may study patients independently and assume responsibility for their medical care 2 To provide an attending staff capable of giving guidance and acting in the capacity of consultants 3 To provide for sufficient extramedical assistance for the establishment of a service as described by Dr Marriott in which preventive medicine will assume a more and more important role and to which the former graduates of the school may return for instruction and stimulation I feel that such a clinic would enable the school to meet satisfactorily the demands for so-called graduate work which up to date have been largely ignored

DR JOHN V LAWRENCE St Louis All of the progress made by outpatient departments during the past few years is integrated in a change of purpose of these departments from dispensaries for the medical relief of symptoms to institutions for complete medical service On the one side these changes are the result of two converging factors (1) the enormous increase in medical knowledge and procedures (2) a changed attitude on the part of the lay public who now demand the benefits of medical knowledge as their rightful privilege Complete or adequate medical service to the patient not only fulfills the responsibility of an outpatient department in its respective community but constitutes the irreducible minimum of teaching procedure and example to medical students The care of the patient today implies a consideration of a cross section of his health picture which includes the patient's picture as a whole pathology, psychology and social and environmental factors of adjustment New consideration of standards and methods for conducting outpatient departments has been under way during the past few years Soon a minimum of standards will be recommended for outpatient departments the country over, classified, let us say and even evaluated standards as to (1) professional excellence of practice in the departments whereby the best medical supervision may be stressed, (2) admission of patients whereby they are controlled and allocated to divisions for the most adequate care, (3) incisive and accurate accounting of costs and statistical analysis of pertinent and guiding data, (4) optimal inclusion of social service in the clinic organization in order to interpret more adequately the patient to the physician and the physician to the patient, thus to formulate the concept of the place of social service for oncoming physicians (5) controlled conduct of the patient's attendance throughout the clinic and discharge from treatment with appropriate follow-up information and guidance (6) unified records of the medical care of the patient whether ambulatory or bedfast These standards as well as others, are necessary for the changing era in medical care and teaching The outpatient department can no longer be considered merely a feeder for hospital wards but takes its place significantly in the march toward preventive medicine as a reality and adequate medical care of the people

DR B R SHURIN Detroit The new problem of changing medical economics has brought with it a wave of control and jurisdiction by the various county societies over the dispensaries and outpatient departments in our large cities It is well and good that some modification and control of a reckless and ruthless increase of patients in the dispensaries that have been not carefully guarded as to who may be their family doctor and where they may likely be sent is a very judicious criticism It seems to me that the county society and the practitioner in general must realize that there are two distinct classes of outpatient departments one that is truly and instinctively the teaching ideal the idea of a student contact which is absolutely essential to the medical school We could greatly improve our outpatient service by paying the men who serve in that service and we have in Detroit established that feature of the

outpatient teaching department whereby men shall receive some remuneration for their services The new wave that has come over our profession is the wave of specialism and the large number of 35 per cent of our men classified either rightly or by themselves as specialists is an alarming fact It has been my privilege to be on the Board of Examiners for Otolaryngology and during nine or ten years we have examined more than 2,000 men The feeling which I have is that our medical education should be most certainly modified and directed more strenuously away from specialism and more highly concentrated on the fundamentals of bedside medicine and the outpatient department, with its fundamentals and basic interrelationships between the physician and the patient It is not unusual for us to examine men who have patients under their observation in the outpatient department as we examine them and who have acute diseases acute discharging ear or acute throat disorder, who will never take their temperature never feel their pulse and never suggest the examination of their chest Should we not come back more strongly in our medical schools to this fundamental basic outpatient department, where our men will be taught psychologically and economically and generally that the great service of the physician is the understanding of his patient and the grand humanitarianism that has gone through these many years with our general practitioners?

(To be continued)

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

### CALIFORNIA

**Society News**—Dr Kenneth H Sutherland Santa Ana, was chosen president-elect of the Southern California Public Health Association at its recent annual meeting and Raymond V Stone, director, bureau of laboratories Los Angeles County Health Department, Los Angeles was installed as president —The Los Angeles County Medical Society offered a non-medical program at its general meeting March 19 Mr Maurice Zam concert pianist and Mr Alexander Kisselburgh concert stage baritone performed and William A Fowler BE of the California Institute of Technology Pasadena, discussed 'Recent Developments in Physics and Dr Arthur Elmer Belt 'Book Hunting—A Sport for the Doctor's Leisure'

**Annual Tuberculosis Meeting**—The California Tuberculosis Association held its annual meeting in Sacramento April 2-4 Guest speakers included Dr J W Arthur Myers Minneapolis on The Contribution of Organization and Mr Homer N Calver, New York Respiratory Diseases, in Unmet Challenge Dr Myers also addressed the annual banquet Other speakers included Drs Louis H Giles and Elphège A Beaudet, Livermore 'Some Factors Influencing the Reactivation of Patients Discharged from Our Sanatoria', Ross W Harbaugh San Francisco, 'Tuberculosis as an Industrial Problem' Emil Bogen Olive View Thermotherapy in Tuberculosis John C Jones, Los Angeles Lobectomy for Uncontrolled Pulmonary Hemorrhages in Tuberculosis and Sidney I Shipman San Francisco, Tuberculous Stenosis of the Bronchus

### COLORADO

**Society News**—Dr Johnson E Naugle Sterling, among others addressed the Northeast Colorado Medical Society in Sterling March 12 on pleurodynia —Dr Harry Gruss, among others addressed the Medical Society of the City and County of Denver, April 7 on Gastro Intestinal Symptoms of Pelvic Origin

**Spring Graduate Clinics**—The annual spring graduate clinics presented by the Pueblo County Medical Society under authorization of the committee on postgraduate clinics of the Colorado State Medical Society will be held in Pueblo April 29-May 1 Sessions will be held at St Mary's Colorado State and Parkview hospitals Guest speakers will include Dr William W Watson, Dr Walter W King Paul Maltby Clark and Paul P Prosser attorneys all of Denver The subjects of Dr Watson and Dr King will be Medical Economics and The Doctor in Politics respectively

## DELAWARE

**Society News**—Dr John M T Finney Sr, Baltimore, discussed "The Role of the Imponderables in Surgery" before the New Castle County Medical Society in Wilmington, April 21. Dr William Wayne Babcock, Philadelphia, addressed the society March 17 on "Diagnosis and Treatment of Intestinal Malignancy and Hirschsprungs Disease."

## DISTRICT OF COLUMBIA

**Medical Bills in Congress**—H R 11548, introduced by Representative Mitchell, Illinois proposes to direct the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art to Dr Clarence Q Pair. H R 12242 has been reported to the House with recommendation that it pass, proposing to revise the lunacy proceedings in the District of Columbia.

## FLORIDA

**Banquet to Medical Officers**—The Dade County Medical Society gave a banquet in Miami, February 26, in honor of Drs James S McLeister, Birmingham Ala. President, American Medical Association, Herbert L Bryans, Pensacola, president of the Florida Medical Association, and Julius C Davis, Quincy, past president of the state association.

**Society News**—Dr John J Kindred DeLand addressed the Volusia County Medical Society in New Smyrna, March 10, on 'Modern Conception of Epilepsy and Its Treatment'. —Dr Herbert L Bryans Pensacola discussed medical economics before the Bay County Medical Association in Panama City, March 5. Other speakers included Drs Julius C Davis Quincy on medical legislation, and Walter C Payne, Pensacola, infections of the cervix uteri.

## GEORGIA

**Statue of Dr Crawford Long Unveiled**—A statue erected in Danielsville by the state of Georgia in honor of Dr Crawford W Long, the first physician to use ether anesthesia, was unveiled March 30. The legislature authorized the erection of the memorial at or near Dr Long's birthplace. Mrs O A Harper daughter of Dr Long and E C Long Jr assisted in the unveiling. Speakers included Governor Eugene Talmadge, Dr Lamartine G Hardman Commerce, former governor, Dr James E Paulin Atlanta president of the state medical association, and Dr Hugh H Young Baltimore.

**Society News**—Dr Cleveland Thompson Millen, discussed "The Autonomic Nervous System among other speakers before the Burke-Jenkins-Screven Counties Medical Society at a meeting in Millen recently. —The Baldwin County Medical Society was addressed at Milledgeville among others, recently by Dr Lovick P Longino on 'Vertigo and Its Relation to Infections of the Mastoid Antrum'. —Speakers before the Chatham-Savannah Tuberculosis Association recently were Drs John L Elliott on pneumothorax and Ruskin King Savannah new tuberculin purified protein derivative. —The Georgia Medical Society, Savannah was addressed recently by Drs Job C Patterson, Cuthbert, on Acid Ulcer with Especial Reference to Acute Perforation' and Charles K McLaughlin, Savannah, 'Convergent Strabismus'. —At a meeting of the Colquitt County Medical Society in Moultrie, recently Drs James R Paulk and John B Woodall both of Moultrie, discussed allergy and bronchial asthma respectively.

## ILLINOIS

**Tumor Clinic**—Dr Charles F Geschickter of Johns Hopkins Hospital Baltimore conducted a tumor clinic at Silver Cross Hospital Joliet March 25. This was the third annual clinic of its kind. The first was conducted by the late Dr Joseph C Bloodgood, Baltimore, and the second by Dr Geschickter.

**Society News**—The Adams County Medical Society was addressed in Quincy April 13, by Drs Bernard Portis and Max Cutler Chicago on Acute Surgical Abdominal Conditions and Recent Advances in the Treatment of Cancer respectively. —At a meeting of the St Clair County Medical Society in Belleville, April 1 Dr Edward W Cannady Jr East St Louis discussed Diagnosis and Treatment of Cardiac Arrhythmia. At the session in East St Louis April 2 Dr James S Templeton Pinckneville addressed the society on Responsibility of the Individual Doctor to His Profession.

## Chicago

**Society News**—Dr Byrl R Kirklm, Rochester, Minn., among others, presented "A Roentgen Study of the Stomach and Duodenum After Operation" before the Chicago Roentgen Society, April 9. —At a meeting of the Chicago Pathological Society, April 13, speakers included Drs Paul E Steiner on "Malignant Lymphogranulomatous (Hodgkin's Disease) Cirrhosis of the Liver" and Sol R Rosenthal, "Tissue Lymphocytes in the Prognosis of Hodgkin's Disease."

**Admiral Blackwood Leaves Provident Hospital**—Rear Admiral Norman J Blackwood has announced his retirement as medical director of Provident Hospital, after more than five years service there. He graduated at Jefferson Medical College, Philadelphia, in 1888 and entered the navy in 1889, advancing through the grades until 1929, when he was retired as a rear admiral. Provident Hospital, a training center for Negro medical workers, is housed in the remodeled home of the old Chicago Lying-In Hospital. The development and maintenance of the center was made possible by a \$3,000,000 fund subscribed in 1930, \$1,000,000 of which was a gift from the General Education Board of the Rockefeller Foundation. Dr John W Lawlah, director of the institution's x-ray department, has been appointed to succeed Dr Blackwood. He is 32 years of age and graduated from Rush Medical College in 1932.

## INDIANA

**Dr Mettel Named Director of Child Health**—Dr Howard B Mettel, secretary of the Indianapolis Medical Society, has been appointed director of the department of child and maternal health of the state division of public health. This appointment is made under the provisions of the federal social security act it is reported. Dr Mettel graduated from the University of Michigan School of Medicine, Ann Arbor, in 1921.

**Health at Evansville**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million for the week ended April 11, indicate that the highest mortality rate (31.1) appears for Evansville and for the group of cities as a whole, 12.9. The mortality rate for Evansville for the corresponding period last year was 11.6 and for the group of cities, 11.8. The annual rate for eighty-six cities for the fifteen weeks of 1936 was 13.7 as against a rate of 12.7 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

**Society News**—At a meeting of the Tippecanoe County Medical Society in Lafayette, March 10, Dr Delbert O Kearby Indianapolis, discussed diagnosis and treatment of chest diseases with the use of the bronchoscope and x-rays. —The Elkhart County Medical Association, Elkhart, was addressed March 5 by Dr Charles W Mayo, Rochester, Minn., on "Pain in Cholecystitis and Recurring Attacks of Pain Following Cholecystectomy". —Dr Larue D Carter, Indianapolis, discussed 'Diagnosis of the Common Neurologic Diseases' before the Fayette-Franklin County Medical Society in Connersville March 10. —The Kosciusko County Medical Society was addressed in Warsaw March 10, by Drs George N Herring Piercetown, and George W Anglin, Warsaw, on mucous and tuberculous colitis, respectively. —At a meeting of the Muncie Academy of Medicine in Muncie, March 10 Drs Ezra Vernon Hahn and Edwin Rogers Smith, Indianapolis discussed Head Injuries and Their Medicolegal Aspects.

## IOWA

**Society News**—The Iowa Hospital Association will hold its annual convention at the Hotel Fort Des Moines, April 27-28. —A symposium on cardiovascular diseases was presented before the Des Moines Academy of Medicine and the Polk County Medical Society March 31 by Drs Lee Forrest Hill, Walter D Abbott, Des Moines, and Allan G Felter, Van Meter.

**Public Health Meeting**—The tenth annual meeting of the Iowa Public Health Association will be held in Des Moines at the Hotel Savoy, April 28. A symposium on the social security act has been arranged for the noon luncheon session with the following physicians participating: Albert J Cheslev, St Paul, Walter L Bierring, Des Moines, Joseph H Kinna.

man, Des Moines, Arthur Steindler, Iowa City, and Mae H. Habenicht, Des Moines. In addition the following physicians will present papers:

Raymond A. Vonderlehr, Washington, D. C., Syphilis as a Public Health Problem.  
Carl F. Jordan, Des Moines, Progress in Communicable Disease Control.  
Archibald L. Hoyne, Chicago, When Diphtheria Threatens to Take a Life.  
Sidney O. Levinson, Chicago, Value of Human Convalescent Serum in Measles and Poliomyelitis.

## KANSAS

**Class in Public Speaking**—The committee on public education of the Sedgwick County Medical Society recently instituted a series of meetings to give members experience and training in public speaking. Assignments are made at each session and five minute talks are presented by several members at the following meeting. Other members offer criticism, and the chairman elected at each session is criticized on his conduct of the meeting. Thirty members of the society are enrolled.

**Society News**—Dr. William J. Feehan, Kansas City, discussed "Fractures of the Neck of the Femur" before the Wyandotte County Medical Society, March 17. Clarence C. Little, D.Sc., managing director, American Society for the Control of Cancer, New York, also spoke. Dr. John R. Nilsson, Omaha, among others, addressed the Golden Belt Medical Society in Junction City, April 2, on "Surgical Conditions of the Esophagus." The Marion County Medical Society was addressed recently in Marion by Drs. John B. Nanninga, Goessel, on "Death of an Infant from the Inhalation of Fumes from a Patent Asthma Cure" and Ralph R. Melton, Marion, Kidney Tumors of Infancy. Dr. Roland M. Klemme, St. Louis, discussed diagnosis and treatment of trigeminal neuralgia before the Sedgwick County Medical Society, Wichita, April 21.

## LOUISIANA

**State Medical Meeting at Lake Charles**—The fifty-seventh annual meeting of the Louisiana State Medical Society will be held at Lake Charles, April 27-29, with headquarters at the Charleston Hotel and under the presidency of Dr. Courtland P. Gray, Sr., Monroe. Mr. St. Clair Adams, New Orleans, will give the annual oration Tuesday evening and guest speakers will include:

Dr. Arthur T. McCormack, Louisville, The Health Unit and Its Problems.  
Dr. Frank H. Hagaman, Jackson, Miss., Jaundice.  
Dr. George B. Eusterman, Rochester, Minn., Gastric Carcinoma Masquerading as a Benign Lesion With Particular Reference to the Small Circumscribed Ulcerous Type.  
Dr. John L. McGhee, Memphis, Tenn., Treatment of Acute Intestinal Obstruction.

Monday the dinner for past presidents of the society and memorial services for deceased members will be held and Tuesday evening Dr. Gray will receive the medal given each year to the retiring president. Other speakers on the scientific program will include:

Ernest Carroll Faust, Ph.D., New Orleans, Public Health Aspects of Parasitic Infections in the Southern United States with Special Reference to Louisiana.  
Dr. J. Rigney D'Aunoy, New Orleans, Poliomyelitis.  
Dr. Edwin A. Socola, New Orleans, Physical Defects in Children of Preschool and School Age.  
Dr. William H. Seemann, New Orleans, Endemic Typhus.  
Dr. Morgan Smith, Jennings, La., Lobar Pneumonia.  
Dr. Morris Shushan and Mr. Oscar Blitz, New Orleans, Factors Influencing Morbidity and Mortality in Benign Tertian and Estivo Autumnal Malaria.  
Dr. Melville W. Hunter, Monroe, Observations in Acute Coronary Occlusion.  
Dr. Marion D. Hargrove, Shreveport, Auricular Fibrillation.  
Dr. Rena Crawford, New Orleans, Congenital Heart Disease with Reports of Cases and Presentation of Pathological Specimen.  
Dr. Clifford R. Mays, Shreveport, Maternal Welfare in Louisiana.  
Dr. Daniel M. Moore, Monroe, Mycotic Infection of the Lungs.  
Dr. Charles B. Odom, New Orleans, Use of Epidural Anesthesia in General Surgery.  
Dr. David R. Womack, New Orleans, Treatment of Allergy with Nasal Ionization.  
Dr. Emile A. Bertucci, New Orleans, Introduction of a New Vegetable Concentrate in the Treatment of Diabetes Mellitus.  
Dr. Leon J. Menville, New Orleans, Preoperative Irradiation of Cancer of the Breast.

## MICHIGAN

**Scientific Exhibits Committee**—At a recent meeting of the Council of the Michigan State Medical Society, a scientific exhibits committee was created to take charge at the annual meeting at the Book-Cadillac Hotel, Detroit, September 21-24. Dr. Clifford T. Ekelund, Pontiac, is chairman and other members are Drs. Samuel W. Donaldson, Ann Arbor; William M. German, Grand Rapids; and Arthur E. Schiller and Eldwin R. Witwer, Detroit. A new feature of the exhibit will be a hobby show.

**Society News**—Dr. Loren W. Shaffer, Detroit, discussed "Dermatoses of Diagnostic Significance in General Medicine" before the Highland Park Physicians' Club, March 12. At a meeting of the Genesee County Medical Society, March 4, Dr. William J. Cassidy, Detroit, discussed "Selective and Anastomotic Surgery in Life Comfort and Extension." He addressed the Huron-Sanilac County Medical Society, March 6, on "Ectopic Pregnancy." The Grosse Pointe Medical Club, Detroit, was addressed March 11 on "Modern Trend of Tuberculosis" by Dr. Bruce Douglas. At a meeting of the Michigan Society for the Promotion of Dentistry for Children, March 11, the following Detroit physicians spoke: Roger S. Siddall, obstetrics; Allan L. Richardson, pediatrics; John A. Hooke, dermatology; Frederick J. Fischer, orthopedics; Arthur P. Wilkinson, ear, eye, nose and throat; and Benjamin I. Johnstone, the heart.

**Department of Physical Therapy Dedicated**—The dedication of a new therapeutic pool and new quarters of the department of physical therapy of University Hospital, Ann Arbor, took place February 27. Preceding a tour of inspection, a luncheon was given for the heads of the various departments, executives of the university and the trustees of the Horace H. and Mary A. Rackham Fund, which financed the new pool. The department of physical therapy now occupies an entire wing of the basement floor of the hospital. The pool, which is only a portion of the unit, is 25 feet long and 15 feet wide and varies in depth from 2½ feet to 4½ feet. It is supplied by a constant recirculating system, which filters and chlorinates the water and maintains it at a temperature of 90 F. Paralyzed patients may be conveyed into and from the pool by means of a trolley arrangement. There are also two large tanks for individual treatments.

**Tribute to Dr. Biddle**—The Wayne County Medical Society and the Detroit Dermatological Society sponsored a reception and dinner in honor of Dr. Andrew P. Biddle, April 1, to commemorate his completion of fifty years in the practice of medicine. Dr. Biddle graduated from Detroit College of Medicine where he has been emeritus professor of dermatology since 1917. He was a member of the state board of health for six years, president of the Detroit Board of Education in 1925, president of the Detroit Library Commission in 1931 and a member since 1926. He is a charter member of the Wayne County Medical Society and in 1902 became the first editor of the *Journal of the Michigan State Medical Society*. He was president of the state society during the World War. He has also been president of the American Dermatological Society and of the Detroit Academy of Medicine. Speakers at the dinner included Judge Ernest A. O'Brien, former governor; Fred W. Green, Rabbi Leo M. Franklin and Drs. Douglas Donald, Don M. Campbell, Loren W. Shaffer and Robert C. Jameson.

## MINNESOTA

**University News**—A grant of \$13,250 from the U. S. Public Health Service has made possible the establishment of special courses in public health work at the University of Minnesota, beginning with the spring quarter.

**State Medical Meeting in Rochester**—The eighty-third annual session of the Minnesota State Medical Association will be held in Rochester, May 3-6, with headquarters at the Kahler Hotel and under the presidency of Dr. William W. Will, Bertha. Guest speakers will include the following physicians:

Leon A. Berne, Switzerland, Functions of the Spleen.  
Elliott P. Jo lin, Boston, Treatment of Diabetes.  
Ferdinand Sauerbruch, Berlin, Germany.  
Frederick A. Collier, Ann Arbor, Studies in Water Balance Dehydration and the Administration of Parenteral Fluids.  
Donald Guthrie, Sayre, Pa., Surgical Aspects of Peptic Ulcer.

Dr. Willis F. Manges, Philadelphia, will present the Russell D. Carman Memorial Lecture sponsored by the Minnesota Radiological Society. His paper will be entitled "Foreign Bodies and the Use of X-Ray Examination in their Localization and Removal." Other physicians on the program will include:

Edward I. Tuohy, Duluth, Treatment of Gall Tract Disease as Determined by the Stage of Its Development and the Patient's General Condition.  
Oscar E. Locken, Crookston, Oxygen Therapy.  
Henry E. Michel, Minneapolis, A Few Axioms in Dermatologic Diagnosis.  
Martin O. Wallace, Duluth, Management of the Minor Ailments of Pregnancy.  
Hiram J. Lloyd, Mankato, Congenital Heart Defects—Importance of Early Diagnosis.  
Edward A. Regnier, Minneapolis, Management of Appendicitis.  
George A. Earl, St. Paul, Role of Duodenoduodenostomy for Duodenal Ulcers and Duodenal Obstruction.  
Olaf J. Hagen, Moorhead, Regional or Terminal Ileitis.  
James J. Swend, St. Paul, Induction of Obstetrical Amnesia and Analgesia.



Edward N. Peterson, Eveleth, Blood Transfusion  
 Orwood J. Campbell, Minneapolis, Bumper Fractures of the Tibia  
 Warner G. Workman, Tracy, Erythema Multiforme Complicated by  
 Severe Gastrointestinal Disturbances and Hemorrhage from Mucous  
 Membranes in a Priapism  
 Frederic E. B. Foley, St. Paul, Surgical Treatment of Hydronephrosis,  
 a New Operation for the Relief of Ureteropelvic Junction Stricture  
 Mark H. Tibbitts, Duluth, Changes in Aortic Shadows Following  
 Injuries to the Spine  
 Morse J. Shapiro, Minneapolis, Diagnostic and Therapeutic Problems in  
 Heart Disease in Children  
 Gordon R. Kamman, St. Paul, Correlations Between Variations in  
 Barometric Pressure and Incidence of Cerebral Hemorrhage  
 Leo G. Rigler, Minneapolis, The Roentgen Findings in Biliary Fistula  
 George N. Rubberg, St. Paul, Myxedema: Its Nervous and Mental  
 Manifestations  
 Charles H. Mead, Duluth, Ovarian Hemorrhage Simulating Acute  
 Appendicitis  
 Everett K. Geer, St. Paul, Active Pulmonary Tuberculosis Without  
 Symptoms  
 Reuben A. Johnson, Minneapolis, Gonorrheal Pelvic Inflammatory  
 Disease

Monday afternoon there will be a symposium on causes  
 diagnosis and treatment of hay fever by Drs. Ralph V. Ellis  
 and Horatio B. Sweetser Jr., Minneapolis and C. O. Rosen-  
 dahl, Ph.D. An evening meeting Monday will be addressed by  
 Drs. Charles W. and William J. Mayo, Rochester. Mrs. Ernest  
 M. Hammes, St. Paul, president-elect, woman's auxiliary. Dr.  
 Olin West, Secretary and General Manager American Medical  
 Association, and Dr. Will. Among the exhibits will be one  
 on crime detection methods, prepared by the federal bureau of  
 investigation.

### MISSISSIPPI

**Personal**—Dr. Charles D. Mitchell, Gulfport has been  
 appointed superintendent of the Mississippi State Hospital.  
 Whitfield—Dr. John W. Dugger, Jackson has been named  
 director of the Pearl River County Health Unit succeeding  
 Dr. George E. Godman, Poplarville who resigned—  
 Dr. Roger Mayo Flynn has been appointed superintendent of  
 the Newton Infirmary, Newton.

**Society News**—At a meeting of the Northeast Mississippi  
 Thirteen County Medical Society in Starkville, March 17,  
 speakers included Drs. Robert D. Kirk Jr., Tupelo on 'Abuse  
 of Uterine Curette,' and Henry G. Rudner, Memphis, Tenn.  
 'Agranulocytosis'—Dr. Norman E. Applewhite, Jackson  
 read a paper on 'Some Phases of Peroral Endoscopy' before  
 the Central Medical Society in Jackson, February 4.

### NEBRASKA

**Alumni Dinner at Kansas City**—The alumni of the Uni-  
 versity of Nebraska College of Medicine will meet at a dinner  
 during the annual session of the American Medical Association  
 in Kansas City, Mo. Wednesday evening, May 13 at the Hotel  
 Kansas City. Dr. Benjamin L. Myers, 1115 Grand Avenue  
 Kansas City is chairman.

**Society News**—Drs. Esley J. Kirk and Howard B.  
 Hamilton, Omaha, addressed the Scottsbluff County Medical  
 Society, March 12, on 'Diseases of the Kidney' and 'The  
 Respiratory Tract from the Standpoint of Pediatrics' respec-  
 tively. At an evening meeting the speakers presented papers  
 on 'Lung Conditions in Children' and 'Problems of Water  
 Balance' respectively—Drs. John F. Gardiner and James F.  
 Kelly, Omaha, addressed the Omaha-Douglas County Medical  
 Society, April 28, on 'Difficulties in the Recognition of Hypo-  
 thyroidism' and 'Use of the X-Rays as an Aid in the Treat-  
 ment of Infectious Processes' respectively.

### NEW HAMPSHIRE

**Society News**—Drs. Clifton S. Abbott, Laconia, and Car-  
 leton R. Metcalf, Concord president and secretary respectively  
 of the New Hampshire Medical Society, addressed the Bel-  
 knap County Medical Society, Laconia, recently—Dr. Dudley  
 Merrill, Boston recently addressed the Hillsborough County  
 Medical Society on 'Dangers Inherent in the Clinical Diagnosis  
 of Cancer'—A commission for the study of occupational  
 diseases was recently appointed with Dr. Robert J. Graves,  
 Concord as chairman. Among members are Drs. Emory M.  
 Fitch, Claremont and David W. Parker, Manchester.

### NEW JERSEY

**Graduate Lectures**—The Camden County Medical Society  
 is sponsoring a series of graduate lectures during April and  
 May. The series is as follows:

Dr. William Goldring, New York, April 8, Nephritis and April 15,  
 Hypertension, Hypertensive and Arteriosclerotic Heart Disease  
 Dr. Eldridge L. Eliason, Philadelphia, April 22, Diagnosis of Surgical  
 Abdominal Conditions  
 Dr. Jacob Irving, Fort Newark, April 29, fracture clinic  
 Dr. Charles Hendee Smith, New York, May 6, pediatric clinic  
 Dr. Robert A. Matthews, Philadelphia, May 13, The Commoner  
 Psychoses

### NEW MEXICO

**State Medical Meeting at Carlsbad**—The annual meet-  
 ing of the New Mexico Medical Society will be held at Carls-  
 bad, May 6-8, with headquarters at the Crawford Hotel.  
 Among speakers will be:

Dr. Donald H. O'Rourke, Denver, A Consideration of Eye Problems  
 of the General Practitioner  
 Dr. Leslie M. Smith, El Paso, Texas, Atopic Dermatitis and Contact  
 Dermatitis  
 Dr. Charles L. Martin, Dallas, Texas, Advanced Cancer About the  
 Head and Neck  
 Dr. Benjamin L. Schofield, Dallas, Indications for Open Operation  
 in Fractures  
 Dr. E. Payne Palmer, Phoenix, Ariz., Emergency Treatment of  
 Fractures  
 Dr. Alexander E. Brown, Rochester, Minn., Clinical Aspects of  
 Jaundice  
 Dr. John L. Murphy, El Paso, Varicose Veins  
 Dr. James Shirley Sweeney, Dallas, Modern Concept of Diabetes  
 Mellitus  
 Dr. George Turner, El Paso, Blood Transfusion  
 Dr. Clarence B. Ingraham Jr., Denver, Sterility  
 Dr. Adolf W. Muthauef, El Paso, Practical Points in Diagnosis and  
 Treatment of Cystitis  
 Dr. Fred W. Standefer, Lubbock, Texas, Allergy—Its Relation to  
 Diseases of the Eye

In the public health section, which meets Thursday, May 7,  
 speakers will include Drs. William W. Bauer, Chicago, director,  
 Bureau of Health and Public Instruction, American Medi-  
 cal Association, Reginald M. Atwater, executive secretary,  
 American Public Health Association, New York, and Karl F.  
 Meyer, Ph.D., San Francisco. Friday's sessions, a luncheon  
 round table session and a general meeting, will be held at the  
 Carlsbad Cavern. Dr. Mallory B. Culpepper, Carlsbad, will  
 be installed as president at the opening session Wednesday, to  
 succeed Dr. Charles W. Gerber, Las Cruces.

### NEW YORK

**Society News**—A symposium on cancer of the larynx was  
 presented at the annual meeting of the Eastern New York Eye,  
 Ear, Nose and Throat Association in Schenectady, April 15,  
 by Drs. Chevalier Jackson, Chevalier L. Jackson and William  
 Edward Chamberlain, all of Philadelphia—Dr. Hugh Cabot,  
 Rochester, Minn., addressed the Medical Society of the County  
 of Westchester, Valhalla, April 21, on 'Management of the  
 Cryptorchid'—Dr. Frederick A. Collier, Ann Arbor, Mich.,  
 addressed the society, March 17, on 'Water Balance and Dehy-  
 dration in the Sick Patient'—The Medical Society of the  
 County of Rensselaer began the publication of a bulletin with  
 the April issue. The society was addressed April 14 by  
 Mr. Dwight Marvin on 'The Physician as a Layman and an  
 Editor Sees Him', Drs. Alton J. Hull, 'Cooperative Medical  
 Practice' and Augustus J. Hambrook, Troy, 'Hard of Hearing  
 Problems in Our School Children and Methods for Correction'.

### New York City

**Personal**—Dr. Morris Hinenburg, assistant director of  
 Montefiore Hospital for Chronic Diseases, New York, has been  
 appointed director of the Jewish Hospital of Brooklyn—  
 Dr. Milton Benjamin Rosenbluth has been appointed visiting  
 physician to Bellevue Hospital—Dr. Herman J. Burman has  
 been appointed assistant professor of clinical otolaryngology at  
 the New York Post-Graduate Medical School—Dr. James  
 Alexander Miller has been appointed administrative consultant  
 in tuberculosis to the city department of hospitals.

**Annual Physicians Art Show**—The ninth annual exhibi-  
 tion of the New York Physicians Art Club was on view April  
 6-18 at the New York Academy of Medicine with 223 items  
 varying from oil paintings to cabinet work. Landscapes and  
 still life paintings were most numerous among the exhibits.  
 Two memorial groups were shown, one a group of water colors  
 by the late Dr. Albert Henry Fridenberg, the other an unfini-  
 shed sculpture left by the late Dr. Walter Beran Wolfe. The  
 exhibition also included photographs and craft work.

### NORTH DAKOTA

**Diploma Lost**—Dr. William John Pangman, Walperton,  
 recently reported the loss of his medical diploma from the  
 College of Medical Evangelists, Los Angeles, dated June 21,  
 1931.

**Personal**—Dr. James P. Widmeyer, who has been in active  
 practice at Rolla for more than forty years, has been made an  
 honorary life member of the Devils Lake District Medical  
 Society—Dr. Leslie G. Eastman, Hazen, was elected presi-  
 dent of the North Dakota Sixth District Medical Society  
 recently. Dr. George M. Constans, Bismarck, vice president,  
 and Dr. Leonard W. Larson, Bismarck, secretary—Dr. J. W.  
 Moreland, Carpio, has been appointed health officer of Ward  
 County, succeeding Dr. Henry L. Halverson, Minot, who  
 resigned.



## OREGON

**New Officers of State Board**—At a meeting of the state board of medical examiners, April 1, Dr Charles C Newcastle was elected president, Dr Joseph F Wood secretary and Dr Linford S Besson, treasurer. All are of Portland. Other members of the board are Drs Elza D Johnson Klamath Falls and Carl G Patterson, Baker and J L Ingle, D O La Grande. The board adopted regulations to govern licensure of graduates of foreign medical schools. Such applicants must be citizens of the United States and must present satisfactory premedical requirements as outlined by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. They must present diplomas indicating graduation from foreign schools that are in good standing in the opinion of the board and they must possess licenses to practice in the country in which they were graduated. Finally, each applicant must satisfy the board that after receiving the foreign diploma and license he has served an internship in a hospital approved by the board.

## PENNSYLVANIA

**Society News**—Dr Hugh H Young, Baltimore, addressed the Cambria County Medical Society, Johnstown, April 9, on "Urologic Problems of General Interest." Dr Paul P Riggie, Washington, addressed the Washington County Medical Society, April 8, on "Peptic Ulcer and Gastric Carcinoma."

### Philadelphia

**Woman Physician Honored**—Dr Marie K Formad was guest of honor at a banquet at the Bellevue-Stratford, March 16, celebrating fifty years of service at the Woman's Hospital. Dr Mary R H Lewis, director of the hospital, presided and Dr Alberta Peltz, president of the staff, presented contributions amounting to \$1,000 to the hospital to be known as the Marie K Formad Endowment Fund. Dr Formad graduated from the Woman's Medical College of Pennsylvania in 1886.

**The Johnson Lectures in Medical Physics**—Drs Joseph Erlanger, professor of physiology, Washington University School of Medicine, St Louis, and Herbert S Gasser, director, Rockefeller Institute for Medical Research, New York, gave the lectures at the Elbridge Reeves Johnson Foundation for Medical Physics at the University of Pennsylvania, March 31-April 7. The subject was "Electrical Signs of Nerve Activity." Both lecturers spoke at the introductory session, March 31, and succeeding lectures were:

- April 1. Analysis of the Compound Action Potential of Nerve. Dr Erlanger.
- April 2. Comparative Physiologic Characteristics of Nerve Fibers. Dr Erlanger.
- April 3. Some Reactions of Nerve Fibers to Electrical Stimulation. Dr Erlanger.
- April 6. Sequence of the Potential Changes. Dr Gasser.
- April 7. The Irritability Cycle. Dr Gasser.

At the opening session the honorary degree of doctor of science was conferred on Dr Gasser and Dr Erlanger by the university.

### Pittsburgh

**Flood Waters in Doctors' Offices**—Flood waters in the printing plant that publishes the *Pittsburgh Medical Bulletin* and in the building containing the offices of the Allegheny County Medical Society made it impossible to print the issues of the bulletin for March 21 and 28. The issue of April 4 quotes the following editorial tribute to Pittsburgh physicians published in the *Pittsburgh Post-Gazette*, March 24:

It was characteristic of their profession that 600 Pittsburgh physicians should immediately have volunteered their services in guarding the public health in the wake of the flood.

In such crises the doctors are always in the first line of defense working unselfishly, heroically. And how quietly and effectively they work.

There could be no higher tribute to the profession than the fact that it was expected to do this as a matter of course—and it never disappoints.

Pittsburgh newspapers issued from the presses of papers in neighboring towns carried messages of advice to the flood-stricken area from city, county and state health authorities and the county medical society the bulletin said. Radio station KDKA also cooperated under the greatest difficulties in broadcasting such advice as could be given by the health authorities. The *Pittsburgh Medical Bulletin* quoted a communication from the Medical Society of the State of Pennsylvania as follows:

We cannot close this communication without bringing to your sympathetic attention the plight of probably 200 of our state society members scattered across the state (fifty of them in Johnstown) through whose first floor combined offices and residences flowed from 5 to 12 feet of destructive flood waters.

## SOUTH DAKOTA

**State Medical Meeting at Sioux Falls**—The fifty-fifth annual session of the South Dakota Medical Association will be held in Sioux Falls, May 4-6, with headquarters at the Cataract Hotel. Guest speakers will be:

- Dr Robert D Schroek, Omaha: Fractures of the Elbow and Fractures of the Knee Joint.
- Dr Jay Arthur Myers, Minneapolis: Modern Methods of Controlling Tuberculosis.
- Dr Roscoe G Leland, Chicago: Director, Bureau of Medical Economics, American Medical Association: Changes Confronting Modern Medicine.
- Dr Robert Glenn Allison, Minneapolis: subject not announced.
- Dr Joseph C Ohlmacher, dean, University of South Dakota School of Medicine, Vermillion: Organic Basis for Hypo Insulinism and Hyperinsulinism.
- Dr Elliott P Joslin, Boston: clinic on diabetes.

The South Dakota Academy of Ophthalmology and Otolaryngology will meet May 6, with the following speakers: Drs Otis R Wolfe, Marshalltown, Iowa, "Cataract Extraction by the Barraquer Method" and William H Griffith, Huron, "Schilling Hemogram in Acute Infections." Dr Albert S Rider, Flandreau, is president of the state medical association and Dr James L Stewart, Nemo, president-elect.

## UTAH

**New Health Commissioner**—Dr Thomas J Howells has recently been appointed health commissioner of Salt Lake City to succeed Dr Sol G Kahn. Dr Howells was graduated from Jefferson Medical College, Philadelphia, in 1910.

## GENERAL

**Milk Commissions to Meet**—The annual joint meeting of the American Association of Medical Milk Commissions and the Certified Milk Producers Association of America will be held in Kansas City, May 11-12, at the Hotel Baltimore, under the presidency of Dr Milton J Rosenau, Chapel Hill, N C. Among speakers will be:

- Boyd S Gardner, DDS, Rochester, Minn.: Nutrition as Affecting the Teeth.
- Dr Paul J Zentay, St Louis: Problems Ahead for Certified Milk.
- Dr Harold L Barnes, Brooklyn: Shall We Continue to Certify Milk?
- Dr Oscar Reiss, Los Angeles: A Suitable Milk for Infant Feeding.
- Dr Edwin T Wyman, Boston: Milk in Infant Feeding.
- Dr Hugh I Dwyer, Kansas City: Importance of Certified Milk in the Diet After Infancy.
- Conrad A Elvehjem, Ph D, University of Wisconsin, Madison: The Growth Promoting Factor in Milk.

**Association for Research in Ophthalmology**—The annual meeting of the Association for Research in Ophthalmology will be held May 12 in Kansas City at Edison Hall, Power and Light Building. The program is as follows:

- Dr Otto Barkan, San Francisco: Goniotomy or Incision of Schlemm's Canal for Chronic Glaucoma—Results of Gonioscopic Research.
- Dr Earl L Burkly, Baltimore: Studies on the Action of Staphylococcus Toxin and Antitoxin with Special Reference to Ophthalmology.
- Drs Richard T Thompson, Edward Gallardo and Deborah Leachte, New York: Precipitins in the Ocular Tissues of Rabbits Generally and Locally Immunized with Crystalline Egg Albumen—Their Relationship to Allergy.
- Dr George E Park, Chicago: An Investigation of the Angular Relation of the Visual and Optic Axes.
- Dr Karl Meyer and John W Palmer, Ph D, New York: The Nature of Ocular Fluids.
- Dr William M James and A J Siefer, Ph D, St Louis: Observations on the Reducing Substances (Glucose) of the Aqueous and Vitreous Humors of the Eye.
- Drs Placidus J Leinfelder and Harold D Kerr, Iowa City: Roentgen Ray Contrast—An Experimental Histologic and Clinical Study.
- Dr Conrad Beren, Edith I Nilon and George H Chapman, New York: Iritis Produced in Rabbits Eyes by Intravenous Injection of Crude and Purified Cultures of Bacteria Isolated from Patients with Certain Inflammatory Eye Diseases.

**Medical Bills in Congress**—Change in Status. H R 3629 has been vetoed by the President, proposing to authorize the acquisition of additional land for Walter Reed General Hospital. **Bills Introduced**. S 4429, introduced by Senator Thomas, Utah, proposes to create an executive department of the government to be known as the Department of Education and Public Welfare. S 4489, introduced by Senator Hatch, New Mexico, proposes to provide compensation and medical care for enrollees in the Civilian Conservation Corps suffering disability or death resulting from injury sustained in the performance of duty. H R 12300, introduced by Representative Smith, Washington, proposes to provide a uniform rate of pension for unmarried Spanish-American War veterans without dependents while hospitalized and to extend hospitalization to persons recognized as veterans of the Spanish-American War under laws in effect prior to March 20, 1933. H R 12245, introduced by Representative Scruggs, Nevada, proposes to authorize the President to provide for employing unemployed citizens of the United States to discover and develop the mineral resources of the public lands of the United States, and to provide medical care and hospitalization for such employees.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 17, 1936

#### Is Marriage of Cousins Dangerous?

In a letter to the medical journals, Prof J B S Haldane states that the Committee on Human Genetics, appointed by the Medical Research Council, has obtained the cooperation of hospitals in an extensive inquiry on the question of the danger of marriages between cousins. All patients in the participating hospitals are being asked whether their parents were related and if so how. The preliminary results are encouraging. Certain rare conditions seem to be rather commoner among the progeny of related than among those of unrelated parents. But the results will not be statistically significant until at least three times the present number of cards have been completed. More data are particularly desired from country districts, where more inbreeding occurs than in towns.

There has long been the belief that human inbreeding is undesirable and some unions of blood relations are forbidden by law. Professor Haldane points out that recent research has shown that certain diseases are much more common among the offspring of blood relations than in the general population. The following percentages of marriages between first cousins have been found among the parents of patients suffering from the following diseases: *xeroderma pigmentosum*, 47; *retinitis pigmentosa*, 27; *juvenile amaurotic idiocy*, 15; *ichthyosis congenita*, 14. But researches into rare diseases gives little idea of the importance of the phenomenon for general health. The fact that the children of first cousins are some thirty times more likely to develop *retinitis pigmentosa* than the general population does not show whether such abnormalities (due to rare autosomal recessive gene substitutions) are sufficiently common to render the marriage of cousins undesirable. Animal experiments give no clear answer. In some species the inbreeding of members of wild populations leads to numerous recessive abnormalities, in others it does not. Hence the need for the present investigation.

#### Air Raid Precautions

The precautions recommended by the government against gas poisoning in air raids have been reported in previous letters. Under the title "Rescue Parties and Clearance of Debris" the Air Raids Precautions Department of the government has issued a memorandum describing the organization recommended for dealing with buildings and roads. It is suggested that this should be attached to the highway department of the local authorities. Whatever area becomes the unit of organization arrangements should be made with neighboring areas for assistance in case of need. Rescue parties should be organized to release persons trapped in damaged buildings. They should consist of six or eight men including a skilled foreman. For a densely populated area three or four rescue parties should be provided for every 100,000 of population (two on duty and two in reserve). Apart from their value in time of war, the memorandum adds persons trained in rescue work might be of value in the case of the collapse of a building in time of peace. Attention is directed to the difficult and dangerous nature of the work, and it is suggested that skilled men should be used in the nucleus of the organization. For training men in the kind of equipment required assistance could be obtained from such local sources as the fire brigade, mine rescue stations, engineering works, and builders and demolition contractors. Some training in first aid and in the use of gas respirators is also suggested. The occupants of property liable to flooding in the event of an air attack should be warned against taking refuge in basements or ground-floor rooms.

#### ANTIGAS INSTRUCTIONS

The government has issued a circular to all the county and borough councils giving the arrangements for a course of instruction at the civilian antigas school to be established at Failfield, Gloucestershire. The government will train instructors at the school, who can be obtained by the local authorities for instruction in their localities. The government will also provide the necessary respirators and protective clothing for local training. The syllabus for the general course will include the principles of civilian antigas precautions, first aid, decontamination and recognition of poison cases. There will also be specialist courses. Each course will as far as possible be composed of persons interested in antigas measures from a common standpoint. Thus separate courses will be provided for instructors primarily concerned in the following duties: (1) police and fire department, (2) first aid, rescue and ambulance work, (3) decontamination of materials, (4) repair of water and gas pipes, cables and wires that may be contaminated by gas. Two specialist courses, each lasting a week, are contemplated at present. One will be for physicians and nurses and will deal with the medical treatment and care of gas casualties. The other will be for the training of chemists in the detection and identification of gases.

#### International Congress of Physical Medicine

The sixth International Congress of Physical Medicine will be held in London from the 12th to the 16th of May. Lord Horder is the president of the British section, Sir Robert Stanton Woods chairman of the executive committee and Sir Henry Gauvain chairman of the general committee. The congress will consist of full members and associate members. Full members will be physicians. Associate members will include medical students, members of the Society of Radiographers, biophysical assistants, state-registered nurses, and members of the Chartered Society of Massage and Medical Gymnastics. Associate members may attend scientific meetings but not take part in discussions. The fee for full membership of the British section is \$10 and for associate members \$2. For foreign members the fees are respectively 250 and 100 Belgian francs. There will be six sections: (1) Kinesitherapy, (2) Physical Education, (3) Hydrotherapy and Climatotherapy, (4) Electrotherapy, (5) Actinotherapy, (6) Radiotherapy and Radium Therapy. The official language will be English, but papers in French, Italian or German will be received. Physicians who wish to take part in the congress should communicate with the honorary secretary, Dr Albert Eidimow, 4 Upper Wimpole Street, London, W 1.

#### Sir Charles Ballance

The death at the advanced age of 79 of Sir Charles Ballance removes a great neurologic surgeon of the past generation, whose scientific activities continued almost to the end. Educated at St Thomas's Hospital, he graduated at London University and obtained gold medals at the B S and M S examinations. In 1895 he was appointed aural surgeon to St Thomas's Hospital and later assistant surgeon and surgeon. He also became surgeon to the Evelina Hospital for Children and to the National Hospital for the Paralyzed and Epileptic, where Sir Victor Horsley was his surgical colleague. His scientific bent was evident from the first. While waiting for practice he began an investigation into the changes in the coats of the large arteries after ligation. The work began in 1885, under the guidance of Professor Birch-Hirschfeld at Leipzig, was continued in London at the Brown Institute, when Horsley was superintendent and was concluded in the medical school of St Thomas's Hospital with the help of Walter Edmunds. The results were published in 1891 under the title "A Treatise on the Ligation of the Great Arteries in Their Continuity, with Observations on the Nature, Progress and Treatment of

Aneurysm" The value of the work was recognized immediately and established its authors in a high position as surgical investigators. In 1919 he published a profusely illustrated monograph, "Essays on the Surgery of the Brain." But his most important researches, based on elaborate experiments, were those on nerve suture and nerve grafting. As early as 1901 he published, in collaboration with Sir James Purves-Stewart, a preliminary work showing the exact process by which peripheral nerves become reunited after division. His indefatigability in pursuing this subject is shown by the fact that as late as 1934 he was writing on the operative treatment of facial palsy. Restrictions on experiments in this country caused him to go to America, where his work on this subject in collaboration with Arthur Ducloux is well known. This was not his first visit, for he had previously worked there with Cushing. He had intimate relations with the Royal College of Surgeons of which he was vice president and where he was a well known figure as a lecturer. Almost to the end he was working at the college laboratories at Down. He was the founder and first president of the Society of British Neurological Surgeons. Other important works from his pen were "Points in the Surgery of the Brain and Its Membranes" and "Essays on the Surgery of the Temporal Bone." His enthusiasm for surgery was such that at the age of 77 he journeyed to Edinburgh and Aberdeen to show his films of experimental nerve anastomosis.

#### PARIS

(From Our Regular Correspondent)

March 29, 1936

#### The Annual French Congress on Hygiene

The twenty second annual meeting of the Societe de medecine publique was held at the Pasteur Institute. The president for 1935 was Professor Lereboullet of Paris. The subjects taken up were infant feeding, hygiene of institutions for nurslings, and social organization for the protection of children.

Jules Renault of Paris discussed the hospitalization of infants. Every hospital should be divided into small wards of ten or twelve beds in order to limit the spread of contagious diseases, which seem to arise no matter what precautions are employed. Secondly, each ward should be divided into cubicles with glass for two thirds of the height of the partition. Each cubicle should be so equipped for heliotherapy that it will not be necessary to move the child. Ample facilities should be afforded for air conditioning, the temperature being maintained constantly at between 70 and 72 F and the humidity between 40 and 70 degrees. These conditions have existed in his service at the Hospital St Louis since 1922 and have resulted in a greatly reduced mortality.

Robert Debre of Paris pleaded for better isolation of nurslings suffering from contagious diseases as well as special training for the nursing personnel in such institutions. Visits from parents and other relatives should be forbidden.

Lereboullet and Bolin stated that the commoner infectious diseases played the most important part in the mortality of children in the first two years. The mode in which the infection is carried is by direct contact. Cassoute of Marseilles stated that as the result of isolation and cubicles the mortality, which had been 53 per cent in 1920 was only 2.32 per cent in 1934.

In the discussion of the second subject organization of protection of infancy, Leclanchie said that this work was now under government supervision instead of being left to private initiative. Those charged to carry out the duty of saving 50,000 infants every year should be impressed with the necessity of prevention as well as assistance.

Hurtado spoke on the coordination of public and private institutions that take care of very young children. Thus far the burden has been borne by private institutions which receive only a pittance from the state. There is still much confusion

as to the work to be undertaken by private and public institutions. The government should not ignore the efforts of non-public institutions. A careful survey should be made of every portion of France and its colonies in order that a better coordination of existing and of desirable resources may be made. Only through team work between government officials and physicians in charge of infant hospitals can progress be made. The social insurance authorities in the Parisian region have confided all work of maternal and infant protection to a special organization, which has been successful in cutting down the mortality.

#### Abuse of Treatment with Gonadotropic Substance in Undescended Testes

In the *Presse medicale*, March 25, Prof. Georges Marion reports a case in which he warns against the use of gonadotropic substances by those whose knowledge of the variations in the mode of descent of the testis is limited. If the testis is simply arrested in its descent, it is found either in the iliac fossa or in the inguinal canal or it has passed through the canal but is arrested in the upper part of the scrotum just distal to the external abdominal ring. Cases in which the testis is unable to migrate to its normal position in the scrotum are the only ones in which one is justified in a trial of non-operative treatment. There is another totally different group of cases in which the testis is not checked in its descent but migrates so that it lies over the symphysis pubis, over the upper femoral region and in the perineum. The case reported by Professor Marion belonged in the second (femoral) subgroup of migrating or aberrant testes. It is useless to treat these cases by the same method as one might employ in arrest of descent. Marion's patient was 15 years of age with marked deficiency in development of the external genitalia and no palpable evidence as to where the testes were located. At operation, the testis on each side was found over Scarpa's triangle and was about the size of a bean. The testes were replaced in the scrotum. Following the operation, inquiry revealed that the boy had been given gonadotropic substance since the age of 10 years. No effort apparently had been made to distinguish between an arrested descent and an abnormal migration of the testis. Professor Marion deplored the fact that the late operation would be of no avail in stimulating the development of the testis, since it is well known that such an organ will not develop unless an operation (orchidopexy) is performed at as early a period as possible before puberty. If the administration of gonadotropic substance has not been followed by complete descent into the scrotum when the boy reaches the age of 10 or 12 years, operation is indicated.

#### A Donor Who Has Given 257 Liters of Blood

A workman, Raymond Briez, in the public markets of Paris, has been the donor of 257 quarts (liters) of blood since 1924. In that year he furnished the blood for four transfusions and in 1925 for thirty-eight. In 1927 the number attained the astonishing figure of ninety-four and from that year to 1935 averaged from fifty to sixty a year. In 1935 there were ninety-eight transfusions in which the blood was furnished by Briez. The average amount for each transfusion was about 10 ounces (300 cc). No ill effects have ever been noted and Briez is always ready for another call.

#### Report of the American Hospital of Paris

At the recent annual meeting of the board of governors of the American Hospital the president, Mr. Arthur T. Kemp, stated that there had been an increase in revenue as compared to the previous year of 230,276 francs (about \$15,000). The revenue from investments showed a decrease of 60,000 francs (about \$4,200). The total operating expenses were 63,000 francs (\$4,500) more than in 1934. Hospital service rendered to patients unable to pay in whole or in part amounted to

916,930 francs (\$61,128) Mr Edward B Close is voluntarily filling the chair of manager, giving all his time to the hospital Dr Edmund L Gros was reappointed chief of the medical staff Dr Thierry de Martel was named chief of the surgical and Dr Lawrence S Fuller chief of the medical service

#### Lectures on Cardiology at Royat

Royat, a city in central France, is the principal resort which specializes in the treatment of diseases of the heart and blood vessels A course of conferences open to cardiologists of all countries will be given May 31 and June 1 under the supervision of a committee headed by Professor Vaquez The other members will be Professors Clerc, Laubry, Castaigne, Lian, Gallavardin and Dumas Among the subjects on which papers will be read, the following are especially to be noted physiology of vascular tonus (Heymans of Ghent, Belgium, and Brouha of Liege, Belgium), cerebral vascular spasms (Riser of Toulouse), vascular spasms of the extremities (Leriche and Fontaine of Strasbourg), vascular spasms in their relation to endocrinology (Marañon and Duque of Madrid, Spain) and treatment of vascular spasms (Loeper of Paris) Cardiologists wishing to attend can secure information through Dr R Boucomont, Royat (Puy de Dome), France

#### Cure of Staphylococcic Septicemia with Staphylococcus Anatoxin

Another instance of the cure of a severe generalized staphylococcic infection was reported at the same meeting by Merklen and his associates A man, aged 33, was admitted Oct 11, 1935, with the clinical picture of the severe septicemia The illness began during August as a deep-seated infection of the right little finger with gradual appearance of the symptoms of a generalized infection On admission the blood culture was found positive for Staphylococcus aureus In addition to six transfusions, eight injections of staphylococcus anatoxin were given In the first two injections 1 cc was employed, but in each of the six others 2 cc was given In spite of secondary complications, such as a pneumonia of the base of the left lower lobe and septic arthritis of the knee, recovery ensued The first negative blood culture was six weeks after admission to the hospital, five of the six previous blood cultures having been positive

#### Prof René Leriche Lecturer at College de France

Owing to the death of Prof Charles Nicolle, two lectures a week are being given by Prof Rene Leriche of Strasbourg, who has chosen as his subject the "Surgery of Pain" This is a subject to which Professor Leriche has devoted the greater part of his experimental research during recent years His clinical work on the surgery of the sympathetic system is familiar to American surgeons

Professor Leriche is at present head of the department of surgery in the medical school at Strasbourg He has as predecessors in the College of France such distinguished men as Laënnec, Magendie and Claude Bernard

#### Professor Nobécourt Promoted in Legion of Honor

February 15 the friends and assistants of the pediatrician Professor Nobécourt presented him with a medal on his recent promotion to the rank of Commander in the Legion of Honor The meeting was held in the lecture room of the Hopital des enfants malades and the services rendered to the development of pediatrics were described by Surgeon General Rouvillois, president of the Academie de chirurgie

#### Antoine Beclère's Eightieth Birthday

The friends and students of the roentgenologist Antoine Beclère presented him with a medal and a book containing a summary of his contributions to his specialty on March 17, his eightieth birthday Professor Beclère is still very active in hospital work and frequently attends medical meetings

## BERLIN

(From Our Regular Correspondent)

Feb 26, 1936

### Discussion of Diabetes

Important problems in the field of diabetes were recently discussed by the Berlin Medical Society Professor Umber, the first speaker, is of the opinion that in diabetes a disturbance in the absorption of sugar in all the organs as well as the disturbance of the formation of glycogen is to be considered This hypothesis is supported by the effect of insulin therapy, which increases the absorption of carbohydrate by the body In 98 per cent of the cases of diabetes it is a question of damage to the islands of Langerhans, while but 2 per cent present extra-insular hyperglycemia In cases of insular insufficiency, the cases of "true diabetes," reaction to insulin is favorable whereas extra-insular glycosuria is not influenced by diet or by treatment with insulin Umber concludes that the mutual hereditary predispositions toward diabetes in a pair of twins result in identical manifestations of the insular type disease, while dissimilarity can be caused only by infectious neglect of the insulin supply and so on Allen's treatment when not too prolonged is still highly efficacious Since continued secretion of sugar, indicative of a high sugar content in the blood, influences the course of the disease most unfavorably, Umber stipulates that in cases of insular diabetes the urine be free from sugar The maintenance of a normal blood sugar content is necessary, however, only if an operation is contemplated, otherwise it may safely be kept at not above 200 mg per hundred cubic centimeters The necessity for insulin therapy should be determined by the remaining amount of insulin produced and by the number of calories supplied One may attempt to replenish the deficient glycogen supply in the liver and musculature of diabetic patients, under the protection of insulin perhaps, by a regimen rich in carbohydrate and deficient in fat In mixed cases of insular and extra-insular diabetes the hope of effecting a favorable influence over the disease by the establishment of slightly soluble deposits of insulin has not been realized These cases cannot, need not, be kept free from sugar

C Brentano of the von Bergmann clinic pointed out that the skeletal musculature is the greatest consumer of sugar and accordingly the greatest consumer of insulin within the human organization The skeletal musculature and not the liver is the true center of metabolic disturbance in diabetes The distressed glycogen condition tests the organism by increasing the blood sugar in order to facilitate the formation of sugar and acetone bodies Treatment formerly was directed at the dead cells presenting unabsorbed sugar of the flooded tissue fluid, at present the living cells, deficient in glycogen, and the muscle cells in particular are observed The organism must be assisted in its struggle to facilitate the formation of glycogen It is here assumed that a provision of the most important building material of glycogen, the carbohydrate of nutrition, is indicated With this in mind the attempt should be made to obtain the best possible carbohydrate balance namely, the greatest possible difference between the amount of carbohydrate ingested as nutriment and the amount of sugar excreted in the urine The fear of glycosuria is unwarranted, the condition is dangerous only as the balance is deficient Glycosuria and the blood sugar do not increase in the same measure as the amount of supplied carbohydrate Improvement of the balance by increased supplies of carbohydrate has, however, its limitation overfeeding both before and after must be avoided While from 36 to 60 Gm of carbohydrate has heretofore been reckoned as sufficient for the diabetic patient, Brentano attempts to maintain balances of from 100 to 250 Gm in his patients The replenishment of the depleted glycogen stock takes place

most rapidly when temporary injections of insulin in increased amounts and a full, free supply of carbohydrate are employed. With this treatment begins a lasting improvement in the patient's metabolism. In serious cases much more carbohydrate is given now than before. A mild accompanying glycosuria is not harmful.

Also observations on diabetes in childhood were made. Umber had stated that, despite the generally severe course taken by the disease, he successfully treated sixty-seven children who were under observation for two years. One other child patient died in coma. The Berlin pediatrician Professor Bessau stressed, however, the unfavorable prognosis when diabetes occurs in childhood. In its earliest stage, childhood diabetes is often accompanied by decrease in the blood sugar. Bessau infers therefrom a defect in the regulating capacity of the pancreas. The nutriment ingested by children undergoing treatment with insulin should amount to 1 Gm of albumin, 4 Gm of fat and 6 Gm of carbohydrate per kilogram of body weight. Any deviation from this proportion has a bad effect on metabolism, reduction of the carbohydrate ration or an increase in fat causes acetonuria. Since fatalities due to hypoglycemic action occasionally occur among children as late as eight hours after the injection, Bessau considers administration of insulin in the afternoon distinctly contraindicated.

### The Selection of Secondary School Pupils

Health service for the German secondary schools (gymnasien, realgymnasien, realschulen) came to be regarded as important only following the World War. Decades before the Breslau professor of ophthalmology Hermann Cohn had called attention to the prevalence of myopia, particularly among the secondary school population, and at the same time raised the question of school health in general. Today, by careful selection, all but the mentally and physically fit are refused admission to the secondary schools. In March 1935 the national minister of education decreed that young persons afflicted with presumably incurable disorders which impair the vital forces as well as carriers of hereditary disease shall no longer be accepted in the secondary schools. In doubtful cases official medical opinion must be consulted. Young persons who show a stubborn aversion to cleanliness and those who by nonparticipation in physical exercise exhibit "an unwillingness to achieve physical hardihood" are subject to expulsion unless express recommendation that they be permitted to remain is made by both the official physician and the instructor in athletics. Physical exercise thus receives stronger emphasis than before although previously it had been possible in case of total failure in sports and calisthenics to withhold the certificate of fitness for the university.

The national minister of the interior has established certain guiding principles that are to be considered authoritative for health supervision in secondary schools. The public health officers are as yet (up to the time of the general rearrangement of the school medical service) responsible for physical examinations of secondary school pupils.

The guiding principles differentiate candidates as completely conditionally and temporarily unfit for admission.

To the first group belong all those afflicted with mental or physical defects that presumably will later prove obstacles to the proper training for and practice of a profession. Among such disqualifying defects and diseases are badly decompensated heart conditions, severe asthma, chronic kidney disorders, marked defects of the eyes and ears as well as serious impediments of speech resulting from cleft palate or diphtheric crippling, severe organic nervous defects and similar disturbances of the endocrine system, schizophrenia, the milder types of feeble-mindedness and moral delinquency.

Certain diseases classify the candidate as fit on condition for example epilepsy, manic depressive insanity, psychopathic

states, sexual degeneracy and narcotic intoxications. Classified as temporarily unfit are those presenting offensive diseases such as chronic extensive eczema or acute syphilis with cutaneous phenomena, also disturbances that can be easily imitated by others, chorea minor for example, and, finally, ephemeral psychic disturbances that are manifestations of psychoses caused by intoxications, infections or trauma, provided such will not lead to permanent alterations of character.

### Jewish and Non-Aryan Physicians in Germany

In the Nuremberg Laws the terms "Aryan" and "non-Aryan" are abandoned and henceforth the differentiation shall be as between Jewish and non-Jewish physicians. The following are classified as Jewish physicians: (1) full Jews (persons descended from four Jewish grandparents), (2) three-fourths Jews (having three Jewish grandparents), (3) half Jews (having two Jewish grandparents) who on Sept 16, 1935, were members of the Jewish religious community or who subsequently have assumed such membership and, in addition, half Jews who, as of the foregoing date, had contracted marriage with a Jew (or Jewess) or who subsequently have contracted such marriage. All other physicians are collectively classed as non-Jewish.

Non-Jewish physicians must not permit Jewish physicians to serve in their stead nor shall they themselves substitute for Jewish physicians. This rule may be abrogated in exceptional emergency cases by the physicians of the insurance practice. Similar provisions regulate the employment of consultants and assistants. Non-Jewish physicians must refer their non-Jewish patients only to non-Jewish specialists or hospital physicians and vice versa. On the other hand, non-Jewish physicians (in particular, those connected with hospitals and sanatoriums) must receive patients referred by Jewish physicians if the professional circumstances appear to warrant such action. Consultants are under the same obligation. This provision is designed primarily to aid persons entitled to government insurance benefits (sick insurance, invalid insurance and so on).

The new regulation in no way changes the nonadmittance to practice of new physicians of non-Aryan descent and those Aryan physicians who are married to non-Aryans. These have not been admitted to the insurance practice since May 17, 1934. They will not be allowed to practice (as the *reichsarzteordnung* stipulates) so long as on the date of application for admittance the proportion of physicians of other than German (non-Aryan) blood exceeds that of the non-German citizens to the entire population. As non-Germans are classified all persons not descended from four grandparents of German (Aryan) blood.

### Organization for New "German Medicine"

In April the newly established National Organization for New German Medicine' (*Reichsarbeitsgemeinschaft für eine neue "Deutsche Heilkunde"*) will hold its three day national convention at Wiesbaden. Among the announced lecture topics the following may be mentioned: "Paracelsian Thought Within the Bounds of New German Medicine," "Morphologic Foundations of Biologic Thought in Medicine," "Influence of Institutional Treatment on the General Condition and Attitude of the Patient" and "The Clinical Function of Conscience." A layman Wegener, a member of the Expert Advisory Public Health Council and director of the National Federation of Associations for Life and Therapeutic Method in Conformity with Nature will discuss "What Relationship Exists Between the Popular Healing Movement and New 'German Medicine'."

The Congress of Internal Medicine, the first session of which will be held in conjunction with the foregoing organization will be addressed on similar subjects, for example, "Nature Medicine Within the Bounds of Academic Medicine," "New German Medicine-Physician and Graduate Study," and "Scientific Nature Medicine."

**BUENOS AIRES***(From Our Regular Correspondent)*

March 5, 1936

**Antidiphtheritic Vaccination**

Dr Alfredo Sordelli, director of the Instituto Bacteriologico of the National Department of Hygiene, lectured before the Academia Nacional de Medicina of Buenos Aires, Oct 24, 1935, on results obtained by workers in the institute on the preparation of an antidiphtheritic vaccine from a toxoid activated by aluminum oxide. A single injection of 2 cc of the vaccine produced immunization in from 93 to 96 per cent of 6015 children who have been vaccinated. The injection is given in the subcutaneous cellular tissues of the infrascapular region. Local and general reactions were slight.

**Society Reunion**

The Sociedad de Patologia of the northern region of Argentina at its ninth reunion in Mendoza province, Oct 1, 1935, discussed the subject of American trypanosomiasis. Homage was paid to the memory of Dr Carlos Chagas, the discoverer of *Schizotrypanum Cruzi*. More than thirty cases of American trypanosomiasis have been discovered in Argentina, scattered all over the country. Acute forms of the infestation have been seen in small children. In all cases there were palpebral edema and unilateral conjunctivitis (Romaña's sign) which, probably, is the port of entry of the infestation. Cases of trypanosomiasis in animals have been seen in different parts of the country. Dogs, armadillos, ferrets, foxes and bats are the animals which up to now have been found to be naturally infected.

**Disturbances Among Students**

There have been some disturbances among the students of the Faculties of Medicine of Buenos Aires and Cordoba. In the faculty of Buenos Aires the students asked for the resignation of two professors. One resigned, as well as the dean and the board of directors. A new directive board was elected and Dr Jose Arce was appointed dean of the faculty. The new board of directors asked the other professor to resign and granted all the requirements made by the students. September 10 the dean left for a trip to Chile, Peru, Mexico, the United States and Cairo. In the faculty of Cordoba the students forced the resignation of the professors who represented them before the board of directors of the faculty.

**Appointments**

Prof A Sordelli was appointed a member of the Committee of Hygiene and Public Health of the League of Nations.

Dr Ernesto Merlo was appointed professor of semeiology at the Faculty of Medicine of Buenos Aires to succeed Dr C Bonorino Udaondo, who resigned.

Drs Julio Diez, L Rabuffetti and J Hanon were appointed associate professors of surgery, clinical medicine and clinical neurology, respectively, at the Faculty of Medicine of Buenos Aires.

**Institute of Clinical Physics**

The senate passed a bill whereby 150,000 Argentine pesos (about \$42,000) will be allowed yearly for the upkeep of a national institute of physics applied to human pathology. Dr Mariano R Castex has been appointed director.

**Professor Houssay Returns**

Prof B A Houssay has returned to Argentina after a voyage during which he gave twenty-eight lectures as follows: one in Cambridge, England, three in France, nineteen in the United States, two in Canada and three in Brazil. In the United States he gave the Dunham lectures at Harvard, the Hanna lecture in Cleveland, the Lane lecture in San Francisco, the Herter lecture at Johns Hopkins, the Harvey lecture in New

York, the Eastman lecture in Rochester and several other lectures in the University of California, Stanford University, the University of Chicago, the University of Pennsylvania, Yale and the Academy of Medicine of Los Angeles and of San Diego, and the American Association for the Advancement of Science.

Prof B A Houssay was given the honorary degree Doctor honoris causa of the University of Paris, Nov 9, 1935, in the Sorbonne amphitheater.

**Prizes Awarded**

Prizes given for the best theses presented during 1934 were awarded to Dr L Leloir for his work on suprarenals and metabolism of carbohydrates, Dr E Capdehourat for his work on cyanosis in Ayerza's disease, and Dr E Braun Menendez for his work on diencephalon, hypophysis and arterial pressure.

Dr Julio Diez was recently given the first national prize of sciences for 1931 for his work on surgery on the sympathetics in vascular disturbances. The prize is 30,000 pesos (about \$9,500).

Dr P Pavlovsky was given the P Palma prize of 10,000 pesos (about \$2,800) for his work on diagnosis by means of ganglionic puncture.

**Honors Bestowed**

At a public gathering recently in Buenos Aires Dr A H Roffo was rendered homage for his twenty-five years' work in the study of cancer. A plate was unveiled in the Instituto Bacteriologico of Buenos Aires, Nov 23, 1935 in memory of Prof R Kraus, the founder of the institute at its present location. A mural plate was recently unveiled in the Facultad de Medicina of Buenos Aires in honor of Prof Luis Guemes.

**Deaths**

Dr Rodolfo A Rivarola, associate professor of orthopedics and director of the Hospital de Niños, died, Dec 5, 1935.

Dr Pedro B Aquino, physician of the Hospital Alvear, died, Oct 12, 1935.

Dr Francisco de la Torre, professor of therapeutics and ex-dean of the Faculty of Medicine of Cordoba, died, Nov 17, 1935.

Drs Fernando Ruiz and Artemio Zeno, professors of pathologic anatomy and of clinical surgery at the Faculty of Medicine of Rosario, died, Nov 17, 1935.

Dr S Madrid Paez, director of the Casa de Expositos, died, January 16.

Dr Juan Busco, a well known pediatrician, died, January 26.

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**Marriages**

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OSCAR HUGH FULCHER, Welch, W Va., to Mrs Irene Pendleton Moorman at Princeton, March 3.

SAMUEL EUGENE MILLER, Pauline, S C., to Miss Elizabeth M Barnwell of Rockville, March 10.

WALTER G STUCK, San Antonio, Texas, to Miss Mary Eleanor Buck of Chicago, March 28.

GEORGE A FIEDLER, New York, to Miss Elinor Marie Cummings of Toronto, Ont., March 14.

JOHN A SIMMONS, Arcadia, Fla., to Mrs Erma T Lambert of Columbia, S C., February 18.

WILLIAM RUDOLPH HANSA, Iowa City, to Miss Doris Sanborn of Scotia, Neb., recently.

C KEITH BARNES, Williston, N D., to Miss Margaret Skudstad of Chicago, March 17.

FRANZ RENE MURAD to Miss Priscilla Godfrey Merrill both of New York at Bedford, N Y in February.

SAUEL E WIDNER, Lexington, Neb., to Miss Lily E Willis of Detroit, recently.

JOHN M RUSSELL to Miss Elsie Klooz, both of Youngstown, Ohio, February 27.



## Deaths

**Harlow Brooks** ☉ New York, professor emeritus of clinical medicine, New York University College of Medicine, died, April 13, following an operation for abscess of the liver, aged 65. Dr Brooks was born in Medo, Minn, March 31 1871. After attending schools at Mapleton, Minn, and the University of Oregon, he went to the University of Michigan Department of Medicine and Surgery, Ann Arbor, where he graduated in 1895. He studied at the University of Freiburg in Germany in 1898 and at the Polyklinik in Munich in 1901. In 1894 he was assistant demonstrator of anatomy at his alma mater. From 1895 to 1898 he was an instructor in histology and embryology at the Bellevue Hospital Medical College, New York, later known as the New York University and Bellevue Hospital Medical College. He was an instructor and assistant professor of pathology and special pathology from 1898 to 1900, assistant professor of clinical medicine from 1904 to 1911 and later professor of clinical medicine. Dr Brooks served as a captain in the army medical department during the Spanish-American War. In 1917 he served as a major in the World War in command of the Base Hospital at Camp Upton, Yaphank, L I. In 1918 he was promoted to lieutenant colonel in the United States Army and went to France where, after serving as chief consultant in medicine to two armies, was appointed chief surgeon of the Second Army, American Expeditionary Forces. He was awarded the Distinguished Service Medal. Since 1919 he had been a colonel in the U S Army Reserve Corps.

In 1916 Dr Brooks was a member of the House of Delegates of the American Medical Association. He was a member of the American Gastro-Enterological Association and the Association of American Physicians, and a past president of the American College of Physicians and formerly vice president of the New York Academy of Medicine. He served also as chairman of the program committee of the Pan American Medical Association. He was a trustee of the New York Pathological Society and in 1934 honorary police diagnostician of New York City. Dr Brooks was visiting physician to the City Hospital, consulting physician to the Montefiore Hospital, New York Polyclinic Hospital, Fifth Avenue Hospital, Beth Israel Hospital, Union Hospital and the French Hospital, New York, Ossining (N Y) Hospital, Greenwich (Conn) Hospital, Hekensack (N J) Hospital, Mount Vernon (N Y) Hospital, St John's Hospital, Yonkers, and the Beth Israel Hospital, Newark, N J. He was the author of many monographs and special articles on medical, biologic and ethnological subjects and was interested in animal life, exploration and mountaineering. Honorary fellowship was awarded to him by the New York Zoological Society. In 1929 he was awarded an honorary Master of Science by the University of Michigan. He was much sought as a clinical teacher by many medical organizations. As a worker he was indefatigable and his geniality won him innumerable friendships among his colleagues.

**William Bradley Coley** ☉ New York, Harvard University Medical School, Boston 1888, widely known for his work and reports on the treatment of sarcoma by means of erysipelas and prodigious toxins, formerly professor of clinical surgery, Cornell University Medical College, instructor of surgery, New York Post-Graduate Medical School and Hospital 1890-1897, clinical lecturer in surgery, Columbia University College of Physicians and Surgeons 1898-1908 and associate 1908-1909, member of the American Surgical Association, Southern Surgical Association and the Radiological Society of North America, honorary member of the Association of Surgeons of Great Britain and Ireland, honorary fellow of the Royal College of

Surgeons of England, fellow of the American College of Surgeons, author of the chapter on hernia in various systems of medicine and surgery, chief surgeon to the Mary McClelland Hospital, Cambridge, consulting surgeon to the Physicians Hospital, Plattsburg, Fifth Avenue Hospital and Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, and the Sharon (Conn) Hospital, surgeon in chief emeritus to the New York Society for the Relief of Ruptured and Crippled, where he died, April 16, aged 74, following an operation for an intestinal infection.

**Theodore Le Boutilier** ☉ Philadelphia University of Pennsylvania Department of Medicine, Philadelphia, 1898, formerly clinical professor of pediatrics, Woman's Medical College of Pennsylvania, Philadelphia and assistant professor of epidemic contagious diseases, University of Pennsylvania Graduate School of Medicine, served during the World War, past president of the Philadelphia Pediatric Society, on the staffs of the Philadelphia General Hospital and the Philadelphia Hospital for Contagious Diseases, aged 59, died, March 4, in the University of Pennsylvania Hospital.

**Robert Davies Rhein**, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1901, member of the Medical Society of the State of Pennsylvania for many years on the staffs of the Howard Hospital, American Hospital for Diseases of the Stomach and the Philadelphia General Hospital, physician to the Home for Incurables, aged 69, died, February 1, in the Graduate Hospital of coronary thrombosis.

**Marcus Polk Smartt**, Austin, Texas University of Dallas Medical Department 1902, served during the World War, county health officer, formerly director of communicable diseases state department of health, aged 64, died February 5 in a local hospital, of pneumonia.

**George Washington Williamson**, Hartford, Ala., Medical College of Alabama Mobile, 1893, member of the Medical Association of the State of Alabama, past president of the Geneva County Medical Society, aged 72, died, January 29, of cardiorenal disease.

**Daniel Guy Mills** ☉ McCallsburg Iowa State University of Iowa College of Medicine Iowa City, 1896, for many years county coroner, aged 74, died, January 28, in the Iowa Sanitarium and Hospital, Nevada, of carcinoma of the gallbladder.

**Aloys Iberler**, Pittsburgh, Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1925, aged 40, resident physician to St Francis Hospital, where he died, February 12, as the result of a skull fracture received in a fall.

**Ferdinand Wilhelm Vowinkel** ☉ San Francisco, Medizinische Fakultät der Friedrich-Wilhelms-Universität, Berlin Prussia, Germany 1885, served during the World War, aged 74, died, February 24, in the University of California Hospital.

**Louis F Ankrum** ☉ Pittsburgh, College of Physicians and Surgeons Baltimore 1886, aged 78, died, January 25, in the Western Pennsylvania Hospital of bronchopneumonia, following fracture of the pelvis due to a fall on an icy sidewalk.

**Webster Stanley Smith** ☉ Dayton Ohio, Medical College of Ohio Cincinnati, 1880, past president of the Montgomery County Medical Society, aged 79, on the staff of the Miami Valley Hospital where he died, January 30, of arteriosclerosis.

**Murray Morris Levy**, Portland Ore, University of Oregon Medical School, Portland 1917, member of the Oregon State Medical Society, clinical instructor in medicine at his alma mater, aged 50, died, January 24, of coronary sclerosis.

**William Moran**, Portland Maine, Vanderbilt University School of Medicine Nashville Tenn 1901, member of the Maine Medical Association, formerly on the staff of the Maine Eye and Ear Infirmary, aged 73, died, January 30.



HARLOW BROOKS, M D 1871-1936

Charles C McClendon, Galveston, Texas, Meharry Medical College, Nashville Tenn, 1905, aged 55 died, January 20, in the Los Angeles General Hospital, of coronary thrombosis and diabetes mellitus

Clayton Elmer Bartlett, Aberdeen, Wash., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, aged 55, died suddenly, January 14, of heart disease

Roddie J Hamilton, Springfield Ky., University of Louisville (Ky.) Medical Department, 1891, member of the Kentucky State Medical Association, aged 68, died, January 25, of cerebral hemorrhage

Jefferson T Novinger, Westmount, Que., Canada, Hahnemann Medical College and Hospital, Chicago 1903 formerly on the staff of the Homeopathic Hospital, Montreal aged 58 died, January 20

Robert Samuel Frost, Kinnmount Ont Canada M.D., Victoria University Medical Department Coburg 1881 M.B. University of Toronto Faculty of Medicine 1882 aged 83, died, January 24

Arley Ernest Carlock, Hartshorne Okla. Missouri Medical College, St Louis, 1897, member of the Oklahoma State Medical Association, aged 62, died January 10 of coronary thrombosis

Guy Huffman Rothfuss, Williamsport Pa. New York University University and Bellevue Hospital Medical College 1933, aged 31 was killed January 30 in a railroad accident in Sunbury

Robert H Greene, Hagerman Idaho St Louis College of Physicians and Surgeons 1896 member of the Idaho State Medical Association, aged 71, died January 21 of paralysis agitans

Lewis W Watkins, Leonard Texas Memphis (Tenn.) Hospital Medical College 1903, aged 60 died January 5 in the Baylor University Hospital, Dallas of bronchopneumonia

Carolus Melville Cobb, Lynn Mass University of Vermont College of Medicine Burlington 1883 member of the Massachusetts Medical Society, aged 74 died January 2

Francis Joseph Meek, Shamokin Pa. Jefferson Medical College of Philadelphia 1892, member of the Medical Society of the State of Pennsylvania, aged 68 died January 24

Willie Paxton Holloway, Maud Texas Memphis (Tenn.) Hospital Medical College, 1912, served during the World War aged 49 died, February 13 of cerebral hemorrhage

David Wenger Ensminger, Mount Aetna Pa. Hahnemann Medical College and Hospital of Philadelphia 1902 aged 73, died, January 15, of chronic myocarditis

Martin L Brodie, Corinth, Ky. University of Tennessee Medical Department, Nashville 1889 aged 77 died suddenly January 23 of myocarditis and arteriosclerosis

Henry Carlyle Randle, Portland Ore. Willamette University Medical Department, Salem 1907 aged 60 died January 19, of myocarditis and aortic insufficiency

Robert Scrivner Lipscomb, Grapevine Texas Tulane University of Louisiana Medical Department New Orleans 1888 aged 76, died January 26, of pneumonia

William Harvey Clarke, Fruitdale Ala. Medical College of Alabama Mobile, 1894, aged 70 died January 26 in the Mobile (Ala.) Infirmary, of pneumonia

Morgan Wilson Knerr, Coplay Pa. Bellevue Hospital Medical College New York 1891, aged 71 died January 13 of prostatic hypertrophy and uremia

Abraham Moss, Brooklyn, Cornell University Medical College, New York 1903, formerly on the staff of the Broad Street Hospital, aged 53, died, January 19

Allen J Trail, McMinnville Tenn. University of Tennessee Medical Department, Nashville 1895 aged 75 died January 19, of coronary thrombosis

Thomas Jefferson Dodson, Foss Okla. University of Tennessee Medical Department Nashville, 1891 aged 73 died January 13 of chronic myocarditis

William Cannon Cahall Philadelphia Jefferson Medical College of Philadelphia 1879 aged 78 died January 24 in Allenwood Pa. of tuberculosis

John G Sharp Francis, Okla. (licensed in Oklahoma under the Act of 1908), member of the school board aged 64 died January 10, of angina pectoris

Alexander Allen Forbes North Vancouver B.C. Canada University of the City of New York Medical Department 1883, aged 85 died, Dec 4 1935

Jesse J Fouts, Gonzales, Texas, Tulane University of Louisiana Medical Department, New Orleans, 1888, aged 11, died, January 15, of uremia

Irving Harold Blue, Sanford, N.C., Meharry Medical College, Nashville, Tenn. 1924, served during the World War, aged 39, died, January 23

Bernard P Garred, Charleston W. Va., College of Physicians and Surgeons, Baltimore, 1883, aged 77, died, January 19, of coronary occlusion

Thomas P Crawford, East Liverpool, Ohio, University of Wooster Medical Department, Cleveland, 1877, aged 83, died, in January, of senility

William A Hall, Prairie Du Chien Wis., Louisville (Ky.) Medical College, 1877, aged 85, died, January 27, of psychonephritis and uremia

George Louis Marion, Mountain View, Calif., Rush Medical College, Chicago, 1886, aged 70, died, January 27, of coronary thrombosis

Alcinda Auten Pine, South Pasadena Calif., Woman's Medical College Chicago 1882, aged 77, died, January 19 of chronic myocarditis

John Samuel Gale, Tampa Fla. University College of Medicine Richmond, Va., 1907 aged 53, died, January 16, of coronary occlusion

William E Mack, Paradise, Calif. Cincinnati College of Medicine and Surgery 1884, aged 79, died, January 31, of chronic myocarditis

Abigail Grace White, Bradford, Pa., Homeopathic Hospital College Cleveland 1887, aged 82, died, January 13, of chronic myocarditis

Louis Lynn Walls, Los Angeles, Chicago College of Medicine and Surgery 1910, aged 60 died, January 26, of coronary occlusion

Robert Dunn Davis Okla. Southwestern University Medical College Dallas, 1904, aged 55, died, January 19, of coronary occlusion

Robert M Drummond, Russellville, Ark., Vanderbilt University School of Medicine Nashville, Tenn., 1881, aged 79, died January 14

James Fulton Burnam, Madison, Ala., University of Nashville (Tenn.) Medical Department 1899, aged 59, died, January 1 in Huntsville

Louis Prentiss Bethel, Columbus Ohio, Cleveland Medical College 1892 also an orthodontist, aged 76 died, January 17, of heart disease

Robert Carroll Hiscock, Kingston, Ont., Canada Queen's University Faculty of Medicine, Kingston, 1900, aged 60 died January 20

DeLacy Evelyn Wyman, Lena, S.C. University of Georgia Medical Department Augusta, 1900, aged 59, died January 24

Gabriel N Tinsley, Bowling Green Mo. Missouri Medical College St Louis 1879, aged 77, died, January 5, of angina pectoris

George E Goodwin, Vidmore, Okla. Baltimore Medical College 1896, aged 67 died January 18, of cerebral hemorrhage

John Alexander Graham Barstow Calif. Chicago College of Medicine and Surgery, 1915, aged 58, died, January 2

J R Levy, Florence S.C., College of Physicians and Surgeons of Chicago 1894 aged 73, died suddenly, January 21

Lewis Wetzel Spradling, Athens, Tenn., University of Nashville Medical Department, 1899, aged 68, died, January 1

Harry M Pierce, St Petersburg Fla. St Louis Medical College 1887 aged 74, died recently of cardiovascular disease.

Otho D Porter, Bowling Green, Ky. Meharry Medical College Nashville Tenn, 1894 aged 71, died January 21

Richard Stillwell Holman St Louis, Bellevue Hospital Medical College, New York 1882 aged 77, died, January 7

Henry Albert Zininger Hartsville, Ohio, Starling Medical College Columbus, 1892, aged 72, died January 20

Oran Cortez Holt, San Antonio, Texas, Illinois Medical College, Chicago, 1903 aged 53, died January 24

Herbert J Stevens, Titusville Fla. Ohio Medical University Columbus 1893, aged 65 died, January 3

Abram Smith Dyer, Tell City, Ind. (licensed in Indiana in 1897) aged 85 died recently

## Correspondence

### NERVOUS COMPLICATIONS FOLLOWING SPINAL ANESTHESIA

*To the Editor*—Some comment is necessary on the article on nervous complications following spinal anesthesia by Brock, Bell and Davison, which appeared in *THE JOURNAL*, February 8.

There are several statements that to me are basically not quite accurate. The first sentence in the paragraph headed "Comment" reads "In all but one of these cases the cocaine derivative used was well known, two received a preparation of procaine with strychnine sulfate, three nupercaine and one procaine hydrochloride." This sentence is inaccurate. Procaine hydrochloride and nupercaine are two entirely different chemical compounds and neither is derived from cocaine.

Further along, they state "In all of the cases but one, the neural syndromes so speedily followed the administration of the spinal anesthesia as to suggest immediately a direct chemotoxic effect of the cocaine derivatives on the neuraxis. It must be emphasized however, that the direct toxic effect does not entirely explain the causation of the neural complications." It is difficult to understand how the writers can speak of the chemotoxic effect of the cocaine derivatives when, in fact, they are dealing with three different chemical compounds.

In the closing paragraph the authors state, "it should be noted that allergic factors are not involved in these cases, since one is not dealing with protein sensitization." I fear the possibility of an allergic factor is too lightly dismissed and why the authors do not recognize that substances other than protein may be responsible for an allergic reaction I am at a loss to understand.

A. L. SCHWARTZ, M.D., Cincinnati

### ELECTROCARDIOGRAPHIC STUDIES DURING ANESTHESIA

*To the Editor*—In the discussion on the article entitled "Electrocardiographic Studies During Surgical Anesthesia" (*THE JOURNAL*, February 8, p. 434) occur the words even though ventricular fibrillation has not been demonstrated in man. Perhaps some words have been deleted and Dr. M. J. Raisbeck did not intend to make his statement so final. The chapter on ventricular fibrillation in my book (*The Heart in Modern Practice*, ed. 2, 1928) contains a reproduction of an electrocardiogram in a patient and references to various reports in the literature, additional articles regarding the occurrence of this arrhythmia have appeared in subsequent medical journals.

The electrocardiogram figure 5, record C, in the article appears to depict a transition to paroxysmal tachycardia, of ventricular origin with alternation in the direction of the ventricular deflections. This is more dangerous than the mere occurrence of extrasystoles. I have discussed its significance elsewhere (*Ventricular Fibrillation Following Ventricular Tachycardia*, *Boston M & S J* 190:687 [April 24] 1924). In brief, the literature of cardiology contains articles on these subjects.

WILLIAM D. REID, M.D., Boston

[A copy of Dr. Reid's communication was submitted to Dr. Raisbeck, who replies.]

*To the Editor*—The point in this comment is well taken and represents my own opinion in the matter. I should have said that ventricular fibrillation has only rarely been demonstrated in man.

In the course of this impromptu discussion I wished to emphasize the fact that ventricular tachycardia is closely related to ventricular fibrillation and that in the state of our present

knowledge ventricular fibrillation ends fatally in the vast majority of cases. I am well aware of the reports in the literature concerning recurring attacks of ventricular fibrillation which have been recorded and followed by recovery, in the sense that the mechanism reverted to normal.

There will probably be an analogy here in the change of opinion concerning auricular fibrillation. It was a common belief that auricular fibrillation persisted indefinitely when once started until more frequent records brought home the fact that the paroxysmal type is far more common than we originally suspected. In the future we may by dint of frequent records be able to demonstrate an increasing number of cases of ventricular fibrillation followed by recovery.

The fact remains that my statement as printed was incorrect and I accept the correction gladly.

MILTON J. RAISBECK, M.D., New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### TOXICITY OF DINITROPHENOL

*To the Editor*—I am writing concerning one of my patients who has become poisoned by taking dinitrophenol tablets at the advice and under the direction of her druggist. The patient is a woman aged 28 and married. The weight is 177 pounds (80 kg), temperature 98.6, pulse 100, respiration 40. About Jan. 1, 1935, she purchased 1 grain (0.065 Gm.) dinitrophenol tablets. Her druggist told her to take one tablet three times a day and to watch for an elevation of temperature and if this occurred to stop the tablets for a while. Several times she noted that her temperature would rise and she would stop taking the tablets for a day. When the temperature again became normal she would resume taking the tablets, sometimes taking 2 grains (0.13 Gm.) three times a day to make up for the lost time. The daily dose varied from 3 to 6 grains (0.2 to 0.4 Gm.). After taking a total of 100 grains (6.5 Gm.) as a first course she noted a small fibrous tumor growing under the mucous membrane of the left lower eyelid. It was also noted at this time that she was having difficulty in seeing objects clearly for an hour or so after awakening in the morning. Observing these symptoms she decided to stop the tablets. After a lapse of three weeks she resumed the taking of dinitrophenol and consumed 150 one grain tablets at the rate of 3 grains a day. This made a grand total of 250 grains (16.25 Gm.) of dinitrophenol which this patient has taken. She states that she has not taken any since August at which time I first saw her and advised her to stop. A few days ago she again visited me saying that she was very nervous, had had several fainting spells during the summer and had attacks when her face would become very flushed and she would become quite warm. Her hair is becoming loose and is falling out rather rapidly. Three weeks ago the lower left second molar tooth began to crumble and is now almost entirely gone except for the roots. The tumor under the mucous membrane of the left eyelid is a little larger. She cannot sleep well at night although she is tired almost all the time. She has noted a partial suppression of urine and is able to retain it for one and one-half days and then passes only a small amount. The urine is normal in color and negative for sugar and albumin. I have read three reports in *THE JOURNAL* in which death occurred rather quickly but have been unable to find much on the treatment of the condition. I would appreciate any information you have on treatment. I should like to have details of the Berrien test of the urine. Do you think these symptoms and pathologic changes could appear after the drug had been discontinued for two months? What is the prognosis? Has the minimum lethal dose been determined for human beings? I see in *THE JOURNAL* that the minimum lethal dose for animals is 3 mg. per kilogram.

J. S. CALDWELL, M.D., Cincinnati

*ANSWER*—In view of the nature and variety of harmful effects of dinitrophenol that have been and continue to be reported in the literature, there is no reason for doubting that the patient is suffering from the after-effects of this drug, even though its administration was stopped two months ago. The prognosis should be cautious since the patient probably sustained severe damage to the liver and kidneys from which she is apparently slow in recuperating. At our present state of knowledge of the toxicology of dinitrophenol it is difficult to interpret the symptoms of which the patient is now complaining. A basal metabolism and a liver function test at this time might be informative.

The minimum lethal dose of dinitrophenol for animals is supposed to range from 20 to 30 mg. per kilogram of body weight. As little as 10 mg. per kilogram, however, is con-

sidered to be too dangerous for routine use in man. The dose recommended for human beings by the protagonists of the drug is 5 mg per kilogram. However, at least one person out of seven is sensitive to the material and cannot tolerate even much smaller amounts than the recommended dosage. Even the greatest dose that the patient took ( $6 \text{ grains} \times 60 = 360 \text{ mg}$ ), for instance, is below the recommended level ( $80 \text{ Kg} \times 5 = 400 \text{ mg}$ ).

For a recent summary and bibliography on this subject, the inquirer is referred to the report of the Council on Pharmacy and Chemistry in *THE JOURNAL*, July 6, 1935, page 31.

Derrien's test for urine consists in determining the ratio

Formaldehyde nitrogen  
Hypobromite nitrogen

The nitrogen determined by the formaldehyde method represents chiefly the ammonium salts and also amino acids, if any of the latter are present. The nitrogen determined by the hypobromite method represents chiefly urea. The normal value of this ratio varies around 6/100, depending somewhat on the diet and on the individual. The ratio is raised by acid ingestion, in the acidosis of starvation or hyperemesis gravidarum, in diabetic ketosis and in hepatic insufficiency. The ratio is lowered by an alkali residue diet or alkali administration, and in acidosis of renal origin. A discussion of the interpretation of this test may be found in the *Montpellier medical* 6/34 (June 15) 1934.

#### RUBBING LINIMENT

To the Editor—As a camp surgeon in a CCC camp it has been necessary for me to find a good rubbing liniment for the many aches and pains of the boys. I have been making it up as a grand melange of soap water, alcohol, turpentine, ether and chloroform. The only trouble is that there is very little heat in the mixture. I attempted to make up a compound mustard liniment according to the Epitome of the U. S. P. and V. F. Although instructions read for oil of mustard 3 per cent I used an ounce (30 cc) of synthetic oil of mustard to a quart (liter) of a mixture of 300 cc of castor oil and 700 cc of 90 per cent ethyl alcohol; the resulting mixture did not have any heat in it. I then put a drop of the synthetic oil of mustard on my skin and I got only a faint sensation of heat. You will notice that I left out mezereum, menthol and camphor because I felt that the principal thing was the oil of mustard and vehicle. Feeling that the trouble was in the so-called oil of mustard I spoke to the local druggist who had sold it to me. He got another bottle of the oil and made the liniment up in the proper proportions except that he did not put in fluidextract of mezereum as he did not carry it and I did not want to put him to extra expense. The result was the same as before. In view of the fact that this is supposed to be the most powerful mixture of all and since the omission of mezereum did not explain the failure I am writing to you. If published kindly omit name. MD Virginia

ANSWER—It is an error to omit the fluidextract of mezereum, as it adds decidedly to the stinging effect of the liniment. One might, if it is desired to make the preparation still "hotter," double the quantity of the volatile oil of mustard.

A preparation made by extracting powdered capsicum, say 10 per cent, with red oil of camphor is reported to be similar to the proprietary liniment.

#### INTRA UTERINE PRESSURE DURING LABOR PAINS

To the Editor—I am interested in obtaining information regarding intra uterine pressure during labor pains. MD New York

ANSWER—Schatz (*Arch f Gynak* 3/58 1872) recorded the changes in intra-uterine pressure during the process of delivery. He introduced a colpeurynter balloon into the uterus, filled the balloon with water and connected it by means of a tube with a T-cannula, which in turn was connected with two mercury manometers. One manometer recorded the uterine contractions on the drum of the kymograph and the other one helped in the standardization of the pressure values.

Several years later Pouillet (*Arch de tologie* February 1880) constructed the so-called tocograph, an instrument that called for the introduction of a bag into the uterus as well as into the rectum. Other methods were devised by Polailon (*Arch de physiol* 1880 n 1) Acconci (Sulla contrazione e sull'energia dell'utero Turin 1891), Dohnhoff (*Arch f Gynak* 42/335 1892) and Westermarck. Literature on these methods is cited in Westermarck's article on page 332 of the *Skandinavisches Archiv für Physiologie* volume 4 published by Veit & Co, Leipzig in 1893.

Westermarck in 1893 pointed out the disadvantages of the methods reported by Schatz and Polailon. He devised a new method which employs a uterine catheter and a bag. The catheter permits the introduction of the bag into the uterus and also forms the connection between the bag and the tube that connects the instrument with the manometer. The catheter makes it possible to fill the bag with water outside the uterus.

The catheter must be pliable so that it will lie close to the head of the child when the head passes through the pelvis. It should of course not be so soft as to permit compression of its lumen. The Westermarck catheter is 37 cm in length and made of silver, with an internal diameter of 3 mm and with the external end closed with a stopcock. Externally to the stopcock is a screw thread, which connects the catheter with the tube that leads to the manometer. The entire system is filled with water, which should contain no air bubbles. The author describes the conduction system that connects the uterine catheter with the manometer and the registration apparatus. He conducted tests with the apparatus. He reviews the cases and gives tabular reports of the results of the measurement, expressed in milligrams of mercury taken at five second intervals. At the beginning of the labor pain the pressure as thus recorded was usually around 20 mm of mercury. The maximal pressures varied greatly up to 168 mm of mercury. Westermarck also records the pressures during the intervals between pains and the duration of the pains. His observations indicated that the pressure of the labor pains increases as the process of delivery advances and reaches the maximum at the end of labor.

In the literature of recent years, new methods have been described for the graphic recording of the contractions of the parturient human uterus. Because the intra uterine methods of registration were complicated and not without danger of infection, external hystero-graphic methods were devised. Crodell (*Ztschr f Geburtsh u Gynak* 97/138, 1930) described a method of tocography. Crodell's method was employed also by E. Frey and Doris Wenner (*Arch f Gynak* 152/447 [Feb 27] 1933 abstr *THE JOURNAL*, May 20, 1933, p 1648). Frey (*Zentralbl f Gynak* 57/548 [March 11] 1933) devised a hysteronotograph and S. M. Dodek of Cleveland has described a method of external hystero-graphy (*Surg, Gynec & Obst* 55/45 [July] 1932).

Temesvary of Budapest introduced in 1932 a method of procotocography. He introduces a metreurynter into the rectum (*Zentralbl f Gynak* 56/130 [Jan 16] 1932, abstr *THE JOURNAL*, April 2, 1932, p 1235).

K. Podleschka of the German University in Prague has described a method of cystotocography (*Arch f Gynak* 152/159 1932). He registers the pressure of labor pains by measuring the pressure that becomes manifest in the urinary bladder. Following are some additional references to the subject.

Landrien V. R. and Lerouge Jean *Bull méd Paris* 48/658 (Oct. 27) 1934.  
Scaripitti Corrado *Ann di ostet e gynec* 55/1819 (Nov 30) 1933.  
Kreis M. J. *Bull Soc d'obst et de gynec* 22/331 (April) 1933.

#### USE OF COD LIVER OIL BY PROETZ DISPLACEMENT METHOD IN SINUSITIS

To the Editor—Please give me information on the value of the instillation of cod liver oil into the sphenoid and ethmoid sinuses by the Proetz displacement method for the treatment of a chronic sinus infection of very long standing. I have recently tried this method of treating my own sinusitis using Squibb cod and halibut liver oil. The improvement has been rather marked. Over the last four years almost every other method outside of operation has been tried without any apparent improvement. MD Pennsylvania

ANSWER—The use of cod liver oil in the treatment of sinusitis by any method is new, although other oils have been used with success. Apparently the action is merely one of lubrication, as liquid petrolatum serves as well as the other oils employed in these cases. Thus, Proetz says:

The effectiveness of lubricants in relieving sinus irritation and its attendant headaches was brought to my attention by Granger, who describes a case in which there was continuous headache day and night for four weeks, and which disappeared promptly and completely following an injection of lipiodol for diagnosis. Potts cites the case of a woman with a headache of several weeks duration who was similarly relieved. I have since encountered instances of this nature and attribute the relief to the lubricating properties of the lipiodol rather than to any intrinsic therapeutic action of this oil (which is inert, at least with respect to its iodine content), because like results have followed the administration of simple liquid petrolatum of low specific gravity. It is not unlikely that the headaches in these instances were due to the inspissation and possibly the contraction of the secretions in sensitive locations, or to the drying of the membrane itself through unequal ventilation, and that the oil relieved them by simple lubrication. One may employ the light liquid petrolatum referred to, or some simple oily solution, such as the familiar phenol-iodine petrolatum combination (phenol 0.06 Gm, iodine 0.01 Gm, petrolatum 100 Gm). The latter is especially helpful in ozena. The bland vegetable oils are equally effective, provided that there is no

individual sensitivity to them. They have the disadvantage of becoming rancid"—Proetz, A. W. *The Displacement Method of Sinus Diagnosis and Treatment*, St. Louis: Annals Publishing Company, 1931, p. 59.

#### BRITTLE FINGER NAILS

*To the Editor*—A well nourished spinster aged 50 complains of brittle finger nails which detract from the appearance of her hands. She is of a nervous temperament but does not bite her nails. Her home life is unpleasant as her parents are semi-invalids and somewhat tyrannical. She has servants and does not have to do any work that requires immersion of her hands in water. I noticed a beauty article which advised immersing the finger tips in warm olive or almond oil at night and also a high calcium diet. Is there any scientific backing for these measures or is there anything else that might be of help in this case? The patient appears to be in good health otherwise and has a negative history. Kindly omit name and address.  
M D Illinois

*ANSWER*—Brittle finger nails may be dependent on local causes that produce excessive dryness of the nail plate such as nail polishes, polish removers and strong soaps. The constitutional causes in otherwise healthy persons are obscure. As in any condition of the skin or appendages associated with dryness the application of bland oils is beneficial. The internal administration of calcium, with associated vitamin therapy (vitamins A and D) is also of benefit in cases resistant to local measures.

#### SENSITIVITY TO TETANUS ANTITOXIN

*To the Editor*—Does the administration under an ether anesthetic of tetanus antitoxin to a hypersensitive individual eliminate the danger of anaphylaxis and the necessity of desensitization? Please omit name and address.  
M D Maryland

*ANSWER*—In spontaneous sensitiveness to horse emanations and horse protein ether anesthesia could not be relied on to prevent acute anaphylactic shock following the injection of tetanus antitoxin. In sensitiveness due to previous injection of horse serum, ether anesthesia might appear to delay or mask to some extent the possible immediate reaction that might follow reinjection of horse serum.

#### NURSING BY SYPHILITIC MOTHER

*To the Editor*—Proper antisyphilitic treatment was begun in a pregnant woman with a 4 plus Wassermann reaction during her second month of pregnancy. A normal child was born. The blood Wassermann reaction of the child was negative at birth and at 1 month and 3 months. Can the mother breast feed the child without fear of infecting the child with syphilis through the milk? The mother of course is still under antisyphilitic treatment. Her blood Wassermann reaction is still 4 plus. Please do not publish name.  
M D New York

*ANSWER*—The mother may safely nurse the baby as long as she is under adequate treatment.

#### BELCHING

*To the Editor*—What is the best preparation to use for patients who complain of frequent belching of gas even after drinking water? Please omit name.  
M D Michigan

*ANSWER*—Patients complaining of frequent belching should be given the benefit of a thorough examination, including gastric analysis, gallbladder visualization and gastro intestinal investigation. If no organic disturbance is found a diet should be prescribed avoiding the highly seasoned greasy and fried foods and either alkaline powders or dilute hydrochloric acid may be given after meals. Occasionally patients are air swallowers and one must be careful to caution them against continuation of this habit.

#### PHOTOGRAPHIC CYSTOSCOPES

*To the Editor*—I am anxious to take some photographs of the inside of the urinary bladder. I have attempted unsuccessfully to use a Leica camera held close to the cystoscope. I will appreciate any information that you may have on this subject or suggestions where I can find it.  
M D Pennsylvania

*ANSWER*—There are many different makes of so called photographic cystoscopes. Any medical instrument house can supply information.

#### DERMOGRAPHISM

*To the Editor*—A man aged 23 has no abnormalities so far as I can find except marked dermographism. This is so noticeable that it is very embarrassing for him. Would you please advise a plan of treatment? Please omit name.  
M D Oregon

*ANSWER*—The treatment of dermographism is apt to be disappointing. The subject was discussed in *THE JOURNAL* Aug. 3, 1935, page 386.

#### APICAL ABSCESES OF TEETH

*To the Editor*—Under *Queries and Minor Notes* in *THE JOURNAL* January 4 a physician asks what should be done about several asymptomatic apical abscesses discovered by roentgenograms in an apparently healthy person. In your reply you question the proof of apical abscess based wholly on a radiolucent area about the apex of a tooth but you accept the term apical abscess which is commonly a misnomer as implying rarefaction of bone about a pulpless or devitalized tooth and is not usually an abscess in the accepted sense of the word.

Then you proceed to say what should be done after a correct diagnosis has been made by roentgenograms: direct observation and clinical history. Direct observation and clinical history often throw no light on the diagnosis of asymptomatic pulpless teeth. And all this seems of little import when our chief aim is to discover by roentgenograms the presence or absence of pulpless teeth, pyorrhea and other conditions apart. In questionable cases of pulpless teeth in which the pulp canal has not been filled the vitality should be tested by heat and cold and the electric current. Granted a correct diagnosis of a devitalized tooth what shall be done about it? Devitalized or pulpless teeth are almost invariably infected ultimately as shown by the innumerable and painstaking experiments of Rosenow and others and are always a menace to health. But you go on to state that a cure of pulpless teeth is possible without extraction and that the clinical and laboratory history in thousands of such cases have shown that such conditions [pulpless teeth] can be cured and the patients remain permanently well in more than 70 per cent of cases.

This taken literally is an untenable statement. How is it possible to know that such conditions are cured without extraction of the teeth and taking cultures of them after treatment? But the truly extraordinary assertion is that 70 per cent of thousands of persons remain permanently well by this treatment. Do any persons remain permanently well after any treatment whatever? It would pay adults to have their teeth devitalized if they could thereby achieve such a percentage of permanent health by this treatment. If there is any treatment (except extraction) by which a devitalized tooth may be restored to vitality it is as yet unknown. The failure to describe this marvelously successful form of cure of devitalized teeth is an inexplicable omission. The treatment presumably consists of either the resection of the apex of the pulpless tooth or the complete filling of the supposedly sterilized pulp canal. Neither of these methods prevents future infection of devitalized teeth as proved by the exhaustive researches of Rosenow and others since infection arises from the blood stream owing to the lowered resistance of the infected structures about the devitalized or pulpless tooth. Moreover the ablest clinicians have found by experience that devitalized teeth however skilfully treated not infrequently become a source of infection.

Three points I wish to stress: 1. The term apical abscess is usually incorrect. The condition so called is ordinarily (not always) not an abscess as affecting chronic asymptomatic pulpless teeth but roentgenologically refers to rarefaction of bone from infection of devitalized or pulpless teeth. 2. The degree of hazard to which the patient is subjected cannot be determined by roentgenograms. Thus so-called large apical abscesses particularly menacing to the roentgenologist may be less dangerous to health from old walled in infection than what may be taken as a normal roentgenogram of a completely filled devitalized tooth. 3. The treatment of devitalized teeth other than by extraction is fallacious and does not prevent future infection.

But it does not follow that pulpless or devitalized teeth should be extracted as soon as discovered. That is a matter that must be left to the experienced practitioner who understands that the presence of a pulpless tooth in the mouth is always a potential menace to the possessor.

This subject is of extreme importance as nearly 90 per cent of adults have pulpless teeth and the chief resource of the modern practitioner in a vast number of chronic disorders susceptible of alleviation is the removal of focal infections. Among these devitalized or pulpless teeth are probably the most important and frequent.

KENELM WINSLOW M D Seattle

#### APPLICATION OF X RAYS IN CANCER OF THE BREAST AND TO THE OVARIES

*To the Editor*—I read with some surprise in *THE JOURNAL* March 14 page 944 in *Queries and Minor Notes* the remarks under the heading of "Application of X Rays in Cancer of the Breast and to the Ovaries." In your answer to the letter asking for information you state that roentgen therapy to the ovaries has no place in cases of cancer of the breast. This would seem to me rather dogmatic. In 1896 Bert advocated removal of the ovaries as a palliative measure in the treatment of cancer of the breast. Several articles on the subject have appeared recently based on a more careful and scientific study of the relation of the ovaries to the breast. In December 1924 Taylor published a paper in the *New England Journal of Medicine* (221:1138) reviewing the literature. In his conclusions he states that radiation castration following radical operation may inhibit or postpone the development of metastasis. He gives a good bibliography. The subject is reviewed also in the *New England Journal of Medicine* in the December 1935 issue (213:1202).

In June 1935 Dresser presented a paper before the American Radium Society in which he reported the results of a series of cases of cancer of the breast treated by roentgen castration. The analysis suggests that the treatment was beneficial. This paper is to appear shortly in the *American Journal of Roentgenology and Radium Therapy*.

While much more investigative work is necessary before any authoritative statement can be made the evidence at present suggests a distinct relation between the ovarian hormones and cancer of the breast and that radiation castration in women before the menopause is a justifiable procedure. We are advocating it in the Tumor Clinic at the Massachusetts General Hospital and at the Collis P. Huntington Memorial Hospital (Cancer Hospital). It is advised also at the State Cancer Hospital at Portland.  
CHARLES C. SIMMONS M D Boston



## Medical Examinations and Licensure

### COMING EXAMINATIONS

#### STATE AND TERRITORIAL BOARDS

ARKANSAS *Medical (Regular)* Little Rock May 12 13 Sec State Medical Board of the Arkansas Medical Society Dr A S Buchanan  
Prescott *Medical (Electric)* Little Rock May 12 Sec Dr Clarence H Young 207 1/2 Main St Little Rock

CALIFORNIA *Reciprocity* San Francisco May 13 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

CONNECTICUT *Basic Science* New Haven June 13 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

IOWA Iowa City June 24 Dir Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

KENTUCKY Louisville June 10 12 Sec State Board of Health Dr A T McCormack 532 W Main St, Louisville

MARYLAND *Homeopathic* Baltimore June 9 10 Sec Dr John A Evans 612 W 40th St Baltimore

MISSOURI St Louis June 4 6 State Health Commissioner Dr E T McLaugh State Capitol Bldg Jefferson City

NEBRASKA *Basic Science* Omaha May 5 6 *Medical* Omaha June 9 10 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

OKLAHOMA Oklahoma City June 10 11 Sec Dr James D Osborn Jr Frederick

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* May 6 8 June 22 24 and Sept 14 16 Ex Sec Mr Everett S Flwood 225 S 15th St Philadelphia

#### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPIDOLOGY *Oral examination for Group A and B applicants will be held in Kansas City Mo May 11 12 Sec Dr C Guy Lane 416 Marlboro St Boston*

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Oral clinical and pathological examination of all candidates will be held in Kansas City Mo May 11 12 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)*

AMERICAN BOARD OF OPHTHALMOLOGY Kansas City Mo May 11 and New York Sept 26 *All applications and case reports must be filed sixty days before date of examination* Asst Sec Dr Thomas D Allen 122 S Michigan Ave Chicago

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Kansas City Mo May 11 Sec Dr Fremont A Chandler 180 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Kansas City Mo May 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Kansas City Mo May 9 Albany N Y June 10 Baltimore and Cincinnati in November Sec Dr C A Aldrich 723 Elm St, Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY St Louis Mo May 8 9 Sec Dr Walter Freeman 1028 Connecticut Ave Washington D C

AMERICAN BOARD OF RADIOLOGY Kansas City Mo May 8 10 Sec Dr B R Kirklin Mayo Clinic Rochester Minn

AMERICAN BOARD OF UROLOGY Kansas City Mo May 8 10 Sec Dr Gilbert J Thomas 1009 Nicollet Ave Minneapolis

### Maryland December Examination

Dr John T O'Mara, secretary, Board of Medical Examiners of Maryland, reports the written examination held in Baltimore, Dec 10-13, 1935. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Sixty-six candidates were examined 50 of whom passed and 16 failed. The following schools were represented

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1935)	77.5	
Georgetown University School of Medicine	(1932)	78.2	
(1934) 76 78.2 78.5 80.4 82.3 82.7 83.3			
Howard University College of Medicine	(1934)	75.3	
76.7 (1935) 82 88			
Northwestern University Medical School	(1934)	88	
Rush Medical College	(1934)	77.5	
Johns Hopkins University School of Medicine	(1932)	78.8	
(1934) 84.8 (1935) 83.9 87			
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929)	86.8	
(1934) 93.6 (1935) 80.7 81 81.8 82.8 85.2 88.1			
Harvard University Medical School	(1933)	87	
University of Nebraska College of Medicine	(1933)	87.4	
Columbia Univ College of Physicians and Surgeons	(1935)	87.7	
Long Island College of Medicine	(1934)	81	
New York University College of Medicine	(1933)	91	
Duke University School of Medicine	(1933)	85.3	
Temple University School of Medicine	(1933)	79.8	
Meharry Medical College	(1933) 77.9 (1934)	83.7	
Queen's University Faculty of Medicine	(1932)	82.3	
Rheinische Friedrich Wilhelms Universität Medizinische Fakultät Bonn	(1933)	88*	
Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia	(1931)	80.2*	
(1934) 81.3 81.6* 82.7*			
Regia Università degli Studi di Padova Facoltà di Medicina e Chirurgia	(1934)	81.6*	
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1933)	77.5	
79.1 (1935) 76.2* 76.4* 76.6*			
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1934)	76.2*	
Universität Bern Medizinische Fakultät	(1934)	80.3	

School	FAILED	Year Grad	Number Failed
Georgetown University School of Medicine	(1934) 2	(1935)	3
Howard University College of Medicine	(1935)		1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1935)		1
Friedrich Wilhelms Universität Medizinische Fakultät, Berlin	(1932)*	(1924)*	1
Hamburgische Universität Medizinische Fakultät	(1924)*		1
Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main	(1933)*		1
Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia	(1929)*		1
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1932) (1933) (1934)* (1935)*		4
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1923) (1928)* (1935)*		3

Nine physicians were licensed by reciprocity from October 1 through December 3. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists	(1924)		California
Emory University School of Medicine	(1931)		Georgia
Rush Medical College	(1934)		Michigan
Indiana University School of Medicine	(1921)		Indiana
St Louis University School of Medicine	(1921)		Missouri
Creighton University School of Medicine	(1929)		Nebraska
Woman's Medical College of Pennsylvania	(1934)		Pennsylvania
Vanderbilt University School of Medicine	(1934)		Tennessee
University of Montreal Faculty of Medicine	(1924)		Quebec

\* Verification of graduation in process

## Book Notices

*The Human Foot Its Evolution Physiology and Functional Disorders* By Dudley I Morton Associate Professor of Anatomy College of Physicians and Surgeons Columbia University Cloth Price \$3 Pp 244 with 100 illustrations New York Columbia University Press 1935

The author traces the origin of vertebrate limbs from the protoplasmic primordial forms of organic life. The gradual development of the human foot is presented in an interesting and authoritative manner. The physiology of the foot and the mechanics of weight bearing and locomotion are well described and analyzed. The author states that the great majority of common types of "arch trouble" are caused by accumulative traumatism resulting from uneven weight distribution and faulty movement of stresses through the foot. This gives the average reader something to think about.

By means of two ingenious mechanical devices, the staticometer and the kinetograph, the author shows that the body weight is borne equally on the four lateral metatarsal heads and that the first metatarsal head bears twice as much weight as any one of the lateral heads. He concludes therefore, that there is actually no anterior transverse metatarsal arch. This corroborates the opinion of some other writers and is probably correct. He emphasizes the importance of "hypermobility of the first metatarsal segment," which means the existence of an unusual amount of motion between the medial and the middle cuneiform bones. He believes that this is demonstrated in x-ray films in certain cases. This hypermobility predisposes the individual to abnormal stresses. An unusual shortness of the first metatarsal bone is another element of importance contributing to abnormal stress in weight bearing in that it places too much strain on the second metatarsal bone as evidenced by a definite hypertrophy of the shaft of the second metatarsal. This hypertrophy is well shown in the accompanying roentgenograms, although it does not prove the correctness of the deduction.

Shortening of the gastrocnemius and soleus is an important factor in foot disorders and may be either congenital or acquired. High heeled shoes and prolonged recumbency during illness without proper prevention of foot drop, are mentioned as contributing causes. The x-rays are of great importance in the examination of the feet and are too often neglected. The most common reason for the functional disorders among women is the temptation to use the more abusive type of shoes. T G Morton's metatarsalgia is not due to the pinching of nerves but to traumatic arthritis with effusion of the second tarsometatarsal joint in association with congestion and irritability of the median plantar nerve. The effusion permits a certain amount of abnormal movement between the bones. When these movements occur, a stabbing pain is referred along the nerve. Some orthopedic surgeons might hesitate to accept this explanation in view of the fact that attacks of Morton's metatarsalgia



occur only while the patients are wearing shoes. When walking without shoes no pain is felt. "The symptoms of painful or clinical, disorder are directly traceable to traumatic cellulitis involving the nerves." This statement, while possibly correct, has not been substantiated by pathologic demonstration, so far as the reviewer is aware.

The book is not a compendium of the disorders of the foot and their treatment. The author has spared his readers any discussion of 'athletes foot'. He advocates no new and original operation for bunions. He shows diagrams of only two simple and practical devices to correct improper weight bearing and thus earns the reader's undying gratitude. He has on the other hand, presented in a clear and logical manner the conclusions reached through an enormous amount of research and experience. It is a fascinating and instructive volume.

**The Application of Absorption Spectra to the Study of Vitamins and Hormones.** By R. A. Norton D.Sc. Ph.D. F.R.C. Department of Chemistry, The University of Liverpool. Cloth. Price 10s. 4d. Pp. 70 with 31 illustrations. London: Adam Hilger Ltd. [n.d.]

In this little volume the author presents in an attractive manner the contributions of absorption spectrophotometry to the identification and isolation of vitamins and hormones with a scant mention of carcinogenic compounds. Vitamins A, B<sub>1</sub>, B<sub>2</sub>, C, D and E are treated in the space of fifty-eight pages only three pages being devoted to the hormones. Among the hormones mentioned are the follicular hormone corporin, thyroxine, insulin and epinephrine. It is pointed out that in the hormone field the scantiness of available data makes it impossible to predict how useful spectrophotometric methods may ultimately be because the chances for successful application are greatest for ring compounds possessing two or three double bonds and/or carbonyl groups. The value of the spectrophotometric data given by the author is enhanced considerably by the fact that they are presented in correlation with essential chemical and physiologic properties of the compounds in question. In this context the reader is made to feel that spectrophotometric methods constitute a most useful tool for the study of important biologic compounds while fully recognizing the fact, as pointed out by the author, that for the detection and identification of vitamins and hormones the animal constitutes the court of first and last resort. The publication of this volume is especially timely, as spectrophotometry in biologic research has been a neglected tool. Undoubtedly the scope of its use will be considerably widened by the information now made easily available.

**A Geography of Disease. A Preliminary Survey of the Incidence and Distribution of Tropical and Certain Other Diseases.** By Earl Baldwin McKelvey M.D. Dean and Professor of Bacteriology, School of Medicine, George Washington University. A study made possible by a grant from The American Leprosy Foundation (formerly The Leonard Wood Memorial) to the division of medical sciences of The National Research Council, Washington, D.C. Published as a supplement to The American Journal of Tropical Medicine. Cloth. Price \$5. Pp. 49. Washington, D.C.: George Washington University Press, 1935.

In 1929 it suddenly seemed imminent that a philanthropist in America might endow the subject of tropical medicine with a fund estimated at about \$40,000,000. reads the introduction. The provocative mirage faded but a book was born possibly a souvenir of what has been termed the 'whoopie era' of medical expansion. It represents a compilation of answers to voluminous questionnaires sent to innumerable health officers in various parts of the world. The project must have given employment to a considerable number of clerks and the compiled results may in addition prove useful to public health workers and investigators interested in tropical diseases. It is obviously handicapped by the limitations of the accuracy of the reports that form the basis of the work. Fifteen American states have been included in the morbidity survey, if the material from these is used as a criterion of the usefulness of the data from other countries that usefulness will probably not be great. It might have been advantageous to provide population statistics for the states selected because ready comparisons are difficult without them. For the foreign countries surveyed adequate information of this type has been supplied in the text. Throughout the effort has been made to provide morbidity statistics. It need not be pointed out that morbidity statistics

are misleading in the best regulated countries, in the less advanced regions of the world such tabulations are sheer guesswork. Nevertheless an investigator interested in the tropical diseases of the island of Mauritius, for instance, will immediately have available a 1934 report, from which he can observe that malaria, blackwater fever, dengue fever, leprosy, syphilis and with them amebic dysentery and typhoid, are prevalent and so too there is information concerning twenty-five other diseases that are commonly recorded as typically tropical. There are 116 tables of this type covering practically all countries of the world. Part 5 of the volume consists of short topical summaries contributed by a distinguished group of authors. In these bacillary dysentery is well presented (considering its uncertainty) and so is brucellosis and dengue fever. Indeed, in every instance an expert in the field of the particular disease has evaluated the results of the survey and has in succinct fashion presented suggestions for further study and research attack. Probably this portion of the book is really of greatest value.

**A Text Book of Medicine for Nurses.** By E. Noble Chamberlain M.D. M.Sc. M.R.C.P. Assistant Physician, Royal Infirmary, Liverpool. With a foreword by Miss E. M. Vusson C.B.E. R.R.C. Chairman, General Nursing Council for England and Wales. Second edition. Cloth. Price \$7. Pp. 444 with 46 illustrations. New York & London: Oxford University Press, 1935.

This edition has been prepared in order that important advances in medicine, especially in relation to the blood diseases and disorders of the urinary tract might be included. Sections have also been added which discuss such diseases as undulant fever and coronary thrombosis. The publication of a new British pharmacopoeia has also made it necessary for the authors to rewrite the material on therapeutics and to make adjustments in the doses of various drugs. Throughout the book the nursing aspects of treatment are given especial attention. Nurses as well as all others whose work requires some knowledge of medicine should find this work of value.

**Food for the Diabetic. What to Eat and How to Calculate It with Common Household Measures.** By Mary Pascoe Huddleson. With an introduction by William S. McCann, Dewey Professor of Medicine, University of Rochester School of Medicine and Dentistry. Third edition. Cloth. Price \$1.50. Pp. 110 with 2 illustrations. New York: Macmillan Company, 1934.

Mrs. Huddleson's experience as a dietitian and editor of the *Journal of the American Dietetic Association* is reflected in the simple method she uses for teaching. The program given at the beginning of the text outlines a definite schedule, which is the foundation of all diabetic treatment. The importance of the protective foods is emphasized and the diet planned for the child includes four glasses of milk each day. It is refreshing to read the statement 'There is little danger of going over the carbohydrate allowance with the use of 5 per cent and 10 per cent vegetables even when these are roughly measured. Complete food tables for use in planning a diabetic diet and a few simple recipes are given. The chapter on the testing of urine for sugar and the explanation of insulin its action and proper administration is given in a detailed and definite manner and should prove to be of special value.

**Post Mortems and Morbid Anatomy.** By Theodore Shennan M.D. F.R.C.S. Professor of Pathology in the University of Aberdeen. Third edition. Cloth. Price \$9. Pp. 716 with 241 illustrations. Baltimore: William Wood & Company, 1935.

This book is essentially a postmortem manual and as such should be of value to younger pathologists, particularly if they are doing medicolegal work. Details of necropsy techniques are carefully described. The principal objections to the book are the price and the poor quality of binding (the reviewer's copy needed rebinding when received). The illustrations are good but are similar to those in regular textbooks of pathology and offer no educational advantages to a pathologist competent to perform necropsies. One wonders whether they do not add unnecessarily to the cost. The purposes of the book are praiseworthy and the author is to be commended but the manual can in no way replace a good textbook of pathology and therefore should be marketed in the price range of other dissection manuals.

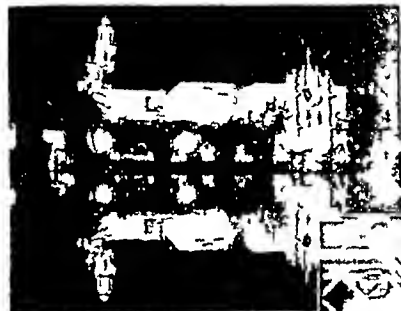
## Miscellany

### THE HALL OF MEDICAL SCIENCE AT THE SAN DIEGO EXPOSITION

The Hall of Medical Science is one of the most striking attractions of the California Pacific International Exposition, at San Diego. This building, situated on the main Plaza de Pacifico is one of the finest and most advantageously located buildings in the exposition. The entire building is devoted to educational exhibits, showing the progress of modern medicine. The California Medical Association in cooperation with the San Diego County Medical Society, has had complete charge of the project from the finishing and furnishing of the building to the selection, installation and censoring of all exhibits. This

The progress of modern surgery is told by an operating suite, showing the surgery of 1882 in contrast with the surgery of an approved hospital of today. The operating rooms are complete in every detail, with a surgical staff presented in full sized figures.

An exhibit on maternal welfare by the Pacific Coast Society of Obstetrics and Gynecology is combined with one of the finest exhibits of graded embryos in America, lent by the Department of Embryology of the College of Medical Evangelists. Unique in this group are perfect specimens measuring 3 and 4 mm and a pair of 3 cm twins with all membranes intact. The exhibit of the Los Angeles Maternity Service presents three miniature homes showing all the arrangements for delivery and care of the baby in the home. The exhibit tells the story of the care of 21,000 charity patients delivered at home with a maternal mortality of only fourteen patients and also methods of reducing maternal mortality.



ABOVE  
THE HALL OF  
MEDICAL SCIENCE

A FEW OF THE MEDICAL EXHIBITS  
AT THE SAN DIEGO CALIF EX  
POSITION FEBRUARY 12 TO SEP  
TEMBER 9 1936



ABOVE  
THE AMERICAN MEDICAL ASSOCIA  
TION'S EXHIBIT

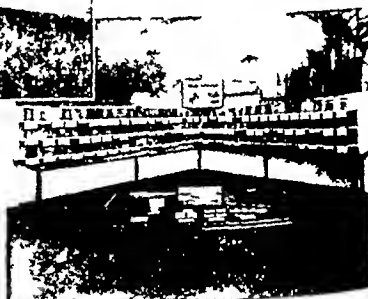


ABOVE  
EXHIBIT BY THE CHICAGO  
ROENTGEN SOCIETY AND  
THE PACIFIC ROENTGEN  
CLUB

BELOW  
THE EXHIBIT ON  
MATERNAL WELFARE



BELOW  
EXHIBIT ON PATHOLOGY  
CONTRIBUTED BY MEDI  
CAL SCHOOLS AND HOSPI  
TALS IN CALIFORNIA



is probably the first time that an exposition has devoted all of one of its principal buildings to medical science and given the medical profession a free hand in the development of the exhibits. The exposition has financed the entire expense of the building.

The central and most important feature in the Hall of Medical Science is the exhibit of the American Medical Association covering about 1,400 square feet. The exhibit features public health problems, periodic examinations and the danger of self diagnosis. A constant projector gives the answers to the most frequent medical questions asked by the public. The display of the activities and publications of the American Medical Association with its constantly moving figures and brilliant changing illumination has a unique and intense popular appeal.

The California Medical Association has an equally large exhibit of public health subjects telling the story of tuberculosis, appendicitis, heart disease, vaccination, diet and medical education.

The care of the crippled child is demonstrated by exhibits lent by the Los Angeles Orthopedic Foundation, Los Angeles Children's Hospital and San Diego Society for Crippled Children.

An extensive exhibit on human pathology has been assembled from Pasadena Hospital, the College of Medical Evangelists, Los Angeles County Hospital, Stanford University Medical School and University of Southern California Medical School.

The San Diego County Health Department has prepared an exhibit on bacteriology, showing transparencies of photomicrographs of common pathogenic organisms, also growing cultures of bacteria and demonstrating methods of identifying bacteria.

The California Medical Association is sponsoring exhibits of plastic and reconstructive surgery and also exhibits of bronchoscopy and allergy.

Additional exhibits have been placed by the California Tuberculosis Association, the American Society for Control of Cancer, the Los Angeles Board of Health, the Department of Public

Health of California, the California State Board of Medical Examiners, the California Dairy Council, the Automobile Club of South California, the General Electric X-Ray Corporation, the Chicago Roentgen Society and Pacific Roentgen Club, the Stanford University Medical School, the University of Southern California College of Dental Surgery, the E H Angler Society for Orthodontia and the Pacific Coast Society for Orthodontists

The Hall of Medical Science has a large auditorium which will be devoted to presentations of moving pictures of public health and medical subjects and to scientific lectures throughout the exposition

The members of the Woman's Auxiliary of the San Diego County Medical Society has taken over the important task of acting as hostesses in the Hall of Medical Science. They preside over a large and attractive lounge, where visiting physicians and their families will be welcomed and where they may make their headquarters while visiting in San Diego

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts Pneumonia Attributed to Facial Infection**—The workman, in the course of his employment, got a splinter in his cheek, which became infected. Cellulitis developed and hospitalization was necessitated. While at the hospital, the workman had pneumonia. He thereafter sought compensation for wage loss by reason of the pneumonia attributing that disease to the infection caused by the splinter. The industrial commission awarded compensation finding that "in view of the nature of the infection, and the sequence and continuity of events, the preponderance of probabilities point to the development of pneumonia because of the bacteria resulting from the facial infection having gained entrance into the blood stream and localized in the lungs". The circuit court affirmed the award and the employer appealed to the Supreme Court of Wisconsin.

Two medical witnesses testified for the workman. One testified that infections of the face have a tendency to get into the blood stream more easily than those of the hand or arm, and that he believed that there was an infection of the blood stream. He consequently thought there was a close association between the infection and the pneumonia. The other witness stated that the facial infection was a streptococcal infection and that pneumonia may result both directly and indirectly from an infection—directly from blood stream transmission and indirectly by a lowering of the patient's general resistance. He admitted that the connection between the facial infection and the pneumonia in the instant case could not be proved. He testified that it was possible that there was an infection in the blood stream although there was no demonstrable evidence of that infection, two blood tests having been found negative. On this evidence said the Supreme Court, there was not only no preponderance of probabilities of development of pneumonia because of bacteria resulting from the facial infection entering the blood stream but there was no probability at all. There was nothing more than a possibility and the industrial commission was not base awards on possibilities. There must be at least some proof of every essential fact to support an award. The award in the present case the court said was based on the inferred fact that the facial infection entered the blood stream and there was absolutely no evidence that it so entered. So far as the award was based on the pneumonia therefore the court held that it must be set aside but since the workman suffered some wage loss from the facial infection the case was remanded so that the industrial commission might determine what compensation should be allowed based on the facial infection alone—*Mayer & Co v Industrial Commission* (115) 263 N W 88

**Workmen's Compensation Acts Death from Sunstroke**—Death from exposure to the elements, including the heat of the summer and the cold of the winter said the Supreme Court of Iowa, is not compensable if the hazard is the same to which the general public is exposed. For compensation to be recoverable for death from sunstroke, the deceased must have been subjected to a greater hazard from heat than that to which the public generally in that locality was subjected. This distinction is recognized by all the authorities. Compensation was denied in this case—*Wai v Des Moines Asphalt Paving Corporation* (107) 263 N W 333

**Compensation of Physicians Liability of Third Person for Medical Services**—The plaintiff, a physician, sued the defendant to obtain payment for medical services rendered a Negro employee of the defendant. The Negro, suffering from a gun-shot wound, was taken to a hospital owned and operated by the plaintiff. Immediately thereafter the defendant came to the hospital and, according to the plaintiff, said "If you will go ahead and take care of the case, I will pay the bill". The testimony of several witnesses tended to corroborate the plaintiff. The defendant, however, denied that he had made the promise just noted and, from a judgment for the plaintiff, he appealed to the Supreme Court of Oklahoma.

The Supreme Court, however, believed that the evidence reasonably tended to support the verdict of the jury. In *May v Roberts* 28 Okla 619 115 P 771, relied on by the court in the present case the plaintiff, a physician, brought suit for services rendered the wife of the defendant's tenant. The defendant had requested the physician to visit the tenant's wife and told him that he would see that the bill was paid. Such evidence was held to be competent and material and to establish a primary liability not within the statute of frauds. Finding no error in the record in the present case, the Supreme Court affirmed the judgment in favor of the physician—*Gloccles v Weeden* (Olla) 50 P (2d) 634

**Optometry Corporate Practice of Optometry Illegal in Arizona, Injunction to Restrain Practice**—The Funk Jewelry Company, a corporation, employed a licensed optometrist to examine eyes and to prescribe glasses. The state of Arizona on the relation of the attorney general instituted action to enjoin the corporation from practicing optometry. From an adverse judgment in the trial court, the corporation appealed to the Supreme Court of Arizona.

The optometry practice act said the court, prescribes certain qualifications to be possessed by applicants for licenses to practice optometry. These qualifications necessarily exclude a corporation from practice. It cannot qualify. It does not possess the necessary moral and intellectual qualities. The corporation therefore when it employed a registered optometrist as a part of its business to examine eyes and to prescribe glasses, violated the optometry act. It was apparently contended however that even though the corporate practice of optometry was illegal, an injunction would not lie to restrain that practice. The optometry act observed the court prescribes no punishment for those who violate its provisions. Consequently the ordinary criminal sanctions such as fine and imprisonment are not available to prevent continued violations of the act. Unless the writ of injunction is available there is available no remedy to enforce the act. Furthermore the court continued while the civil process of injunction may not ordinarily be used to prohibit persons from committing a crime where the crime is a public nuisance or affects the interests of the state, injunctions will lie. *State v Smith* (Ariz) 29 P (2d) 718 31 P (2d) 102 92 A L R 168. The tendency is to grant injunctions to prevent unlicensed persons from practicing the professions. If the present action said the court had been brought by the state board of optometry or by members of the optometry profession, there would be no question of their right to maintain the action in view of the trend of judicial opinion. The present action, however was brought by the state, on the relation of the attorney general. The optometry act, continued the court, was

passed for the general welfare of the people of the state. Its purpose is to protect the health of the people, and, while the state may not have any pecuniary interest in the enforcement of the act, it has a very much higher interest, and that is in the protection of the health and well being of its people. That being the case, it seemed to the court that the state, acting through the attorney general, could lawfully apply to the courts to exercise their equity powers to enjoin violations of the act.

The corporation apparently further contended that the state board of optometry had entered into some kind of an agreement with the licensed optometrist whereby the board agreed that the optometrist might render the services for which he was employed for a limited length of time. Such an agreement, the court said, would not have the effect of suspending the requirements of the optometry act. Furthermore the agreement did not purport to authorize the corporation to practice optometry, and if it had the agreement would have been void.

The judgment of the trial court granting the injunction, was therefore affirmed—*Funk Jewelry Co v State ex rel La Prade (Ariz)*, 50 P (2d) 945

**Malpractice Ankylosis of Wrist Following Treatment of Infection**—A nurse, while attending a child afflicted with streptococcal infection of the throat Nov. 5 1930 pricked the thumb on her right hand deeply with a pin. Infection of the thumb developed and the defendant a physician was consulted. The nurse was removed to a hospital and the hand placed in a hot saline solution to localize the infection and hot wet compresses were applied. Later incisions were made and gradual subsidence of swelling and a lowering of the temperature resulted. On November 22 and 23 however, the nurse's hand gave evidence of ankylosis and the defendant applied a banjo splint to put the hand in a position of functioning. A cast was applied around the splint and the forearm. Claiming that a resulting stiffness of her fingers and wrist was due to the defendant's negligent treatment, the nurse brought suit against him. The trial court gave a judgment for the plaintiff and the defendant appealed to the Supreme Court.

There was a conflict in the evidence, said the Supreme Court, as to whether in the application of the banjo splint the defendant retroflected the hand at an angle of about 90 degrees or at an angle or from 40 to 45 degrees. The plaintiff contended that the defendant had applied to the hand a splint holding the hand in an exaggerated reflexed position, the hand being drawn back at an angle of about 90 degrees, and that the cast was applied around the splint and the forearm so tightly that it interfered with the circulation and with proper drainage. The defendant and the physician who administered the anesthetic prior to the application of the splint testified that the hand was placed in the splint at an angle of from 40 to 45 degrees. Without passing on the evidence, the Supreme Court was compelled to reverse the judgment of the trial court because of the court's refusal to instruct the jury as follows:

If under the evidence and these instructions you should find in favor of the plaintiff you can only allow her damages for so much of her disability as you believe from the evidence is due solely to the negligence of the defendant and not for any disability that you may find was due to the infection.

Under the circumstances of the present case, said the court, since the defendant was not responsible or liable for the original injury, but liable only, if at all, for subsequent negligent treatment, those phases should have been carefully separated by instructions in order that the jury might not be allowed to award damages on mere speculation and conjecture.

The hospital record continued the court, kept in the ordinary course of business was admissible in evidence as an exception to the hearsay rule where the particular entry in question was identified as having been made by a nurse who worked at the hospital and who attended the plaintiff although the nurse had subsequently left the hospital and her present whereabouts could not be accounted for. An instruction given by the trial court that the jury was not bound by the testimony of expert witnesses was not violative of a constitutional prohibition against judges commenting on the evidence.

For the error committed the judgment of the trial court was reversed and the cause remanded for a new trial—*Murgatroyd v Dudley (Wash)* 50 P (2d) 1025

## Society Proceedings

### COMING MEETINGS

- American Medical Association Kansas City Mo, May 11-15 Dr Olin West, 535 North Dearborn St Chicago Secretary
- American Academy of Pediatrics Kansas City Mo May 11-12 Dr Clifford G Grulee 636 Church St Evanston, Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Kansas City Mo May 11 Dr Loring T Swaim, 372 Marlboro St Boston Secretary
- American Association for the Study of Gout, Chicago June 8-10 Dr W Blair Mosser 133 Biddle St Kane Pa Corresponding Secretary
- American Association for Thoracic Surgery Rochester Minn May 4-6 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary
- American Association of the History of Medicine Atlantic City N J May 4 Dr Edward J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency St Louis May 14 Dr Groves B Smith Beverly Farms Godfrey Ill Secretary
- American Bronchoscopic Society, Detroit May 27 Dr Lymao Richards 319 Longwood Ave Boston Secretary
- American Dermatological Association Swampscott Mass June 4-6 Dr Fred D Weidman Medical Laboratories University of Pennsylvania Philadelphia Secretary
- American Gastro-Enterological Association Atlantic City N J May 4-5 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Absecon N J May 25-27 Dr Otto H Schwarz 630 S Kingshighway Blvd St Louis Secretary
- American Heart Association Kansas City Mo May 12 Dr H M Marvin 50 West 50th St New York Acting Executive Secretary
- American Laryngological Association Detroit May 25-27 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Denver May 18-20 Dr C Stewart Nash 708 Medical Arts Building Rochester N Y Acting Secretary
- American Neurological Association Atlantic City N J June 13 Dr Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society Hot Springs Va June 13 Dr J Milton Griscorn 255 South 17th St Philadelphia Secretary
- American Orthopedic Association Milwaukee May 18-21 Dr Ralph K Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Detroit May 28-29 Dr Thomas J Harris 104 E 40th St New York Secretary
- American Pediatric Society Bolton Landing N Y June 11-13 Dr Hugh McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctologic Society Kansas City Mo May 11-12 Dr Curtice Rosser Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association St Louis May 4-8 Dr William C Sandy State Education Building Harrisburg Pa Secretary
- American Radium Society Kansas City Mo May 11-12 Dr E H Skinner 1103 Grand Ave Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 4-6 Dr J M Hayman Jr Lakeside Hospital Cleveland Secretary
- American Society for the Hard of Hearing Boston May 26-30 Miss Betty C Wright 1537 35th St N W Washington D C Secretary
- American Society of Clinical Pathologists Kansas City Mo May 6-10 Dr A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Chicago May 7-9 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Kansas City Mo May 8-9 Dr Oscar B Hunter 1835 Eye St N W Washington D C Secretary
- American Urological Association Boston May 18-21 Dr Clyde L Deming 789 Howard Ave New Haven Conn Secretary
- Arkansas Medical Society Hot Springs National Park Apr 27-29 Dr W R Brooksher 602 Garrison Ave Fort Smith Secretary
- Association for the Study of Allergy Kansas City Mo May 11-12 Dr Warren T Vaughan 808 Professional Bldg Richmond Va Secretary
- Association for the Study of Internal Secretions Kansas City Mo May 11-12 Dr E Kost Shelton 34 Micheltorena St Santa Barbara Calif Secretary
- Association of American Physicians Atlantic City N J May 5-6 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Coronado May 25-28 Dr F C Warnshuis 450 Sutter St San Francisco Secretary
- Connecticut State Medical Society Hartford May 20-21 Dr Charles W Comfort Jr 27 Elm Street New Haven Secretary
- District of Columbia Medical Society of the Washington D C May 6 Dr C B Conklin 1718 M St N W Washington D C Secretary
- Florida Medical Association S S Florida Apr 27-29 Dr Shaler Richardson 111 West Adams St Jacksonville Secretary
- Illinois State Medical Society Springfield May 19-21 Dr Harold M Camp 202 Lahl Building Monmouth Secretary
- Iowa State Medical Society Des Moines Apr 29 May 1 Dr Robert L Parker 3510 Sixth Ave Des Moines Secretary
- Louisiana State Medical Society Lake Charles Apr 27-29 Dr P T Talbot 1430 Tulane Ave New Orleans Secretary
- Maryland Medical and Chirurgical Faculty of Baltimore Apr 28-29 Dr Walter Dent Wise 1211 Cathedral St Baltimore Secretary
- Massachusetts Medical Society Springfield June 8-10 Dr Alexander S Begg 8 The Fenway Boston Secretary
- Medical Library Association Rochester Minn May 25-27 Miss Janet Doe 2 E 103d St New York Secretary
- Medical Women's National Association Kansas City Mo May 10-12 Dr Laila A Coston Conner 333 East 68th St New York Secretary
- Minnesota State Medical Association Rochester May 3-6 Dr E A Meyerding 11 West Summit Ave St Paul Secretary
- Mississippi State Medical Association Greenville May 5-7 Dr T M Dye McWilliams Building Clarksdale Secretary
- New Hampshire Medical Society Manchester May 26-27 Dr Carleton R Metcalf 5 S State St Concord Secretary
- New Jersey Medical Society of Atlantic City June 2-4 Dr J B Morrison 66 Milford Ave Newark Secretary
- New Mexico Medical Society Carlsbad May 6-8 Dr L B Cohenour 219 West Central Ave Albuquerque Secretary

New York Medical Society of the State of New York Apr 27 29 Dr Daniel S Dougherty 2 East 103d St New York Secretary  
North Carolina Medical Society of the State of Asheville May 4 6 Dr L B McBrayer Southern Pines Secretary  
North Dakota State Medical Association Jamestown May 17 19 Dr Albert W Skelsey 20½ Broadway Fargo Secretary  
Rhode Island Medical Society Providence June 3 4 Dr J W Leech 167 Angell St Providence Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City N J May 2 Dr W C Spain 116 East 53d St New York Sec retary  
Society of Surgeons of New Jersey Orange May 1 5 Dr Walter B Mount 21 Plymouth St Montclair Secretary  
South Dakota State Medical Association Sioux Falls May 4 6 Dr John F D Cook Langford Secretary  
Texas State Medical Association of Houston May 25 28 Dr Holman Taylor 1404 W El Paso St Fort Worth Secretary  
West Virginia State Medical Association Fairmont June 8 10 Mr Joe W Savage Public Library Bldg Charleston Executive Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### Archives of Ophthalmology, Chicago

15 377 588 (March) 1936

Virus of Inclusion Conjunctivitis. Further Observations. P Thygeson and W F Mengert Iowa City —p 377  
Anatomic Changes After Cycloidalia. P C Kronfeld Peiping China —p 411  
Measurement of Speed of Adjustment of Eye to Near and Far Vision. Further Study. C J Robertson Annapolis Md —p 423  
Review of Infra Red Photography with Reference to Its Value in Ophthalmology. J B Feldman Philadelphia —p 435  
Binocular Integration of Hue and Brilliance. C A Fry St Louis —p 443  
Inflammatory Exophthalmos in Cranial Disorders of Accessory Sinus. M Cohen New York —p 457  
Minute Structure of Retina in Monkeys and in Apes. S Polak Chicago —p 477

**Exophthalmos in Catarrhal Disorders of Sinuses**—Cohen states that in inflammatory exophthalmos the venous circulation plays the important part. The veins being valveless permit infection to be carried to and from the orbit. The lesions in the orbit depend on the severity of the sinus infection. During the last three years 1517 patients with sinusitis have been treated in the wards of the Manhattan Eye Ear and Throat Hospital. In twenty-two cases the condition was complicated by inflammatory exophthalmos. There were two deaths, one from meningitis and the other from septic thrombosis of the cavernous sinus. Among the twenty-two patients with inflammatory exophthalmos there were eleven with acute ethmoiditis who were treated with medication to the eye and the nasal cavity. The remaining eleven patients were treated by conservative surgery, five by incision and drainage for subperiosteal or orbital abscess, four by external ethmoidectomy with opening of the sphenoid and two by surgical treatment of the frontal and ethmoid sinuses. The ocular signs of inflammatory exophthalmos are self-evident except in the mild acute cases in which the condition is caused by an inflammatory edema of the retrobulbar tissue. In this condition the exophthalmos, the ocular inflammation and the nasal condition are mild and respond rapidly to appropriate treatment. The patient recovers in a few days. The ocular and nasal signs in the more acute and subacute types are more marked and distinctive and are discussed with an illustrative report of a case. Cases of empyema of any of the sinuses with rupture into the orbit are recognized by a local swelling with fluctuation over the area involved which is accompanied by general symptoms such as pain, headache and increased temperature. Rhinologic and roentgen examination give positive evidence in addition to swollen nasal mucosa and discharge. The acute symptoms in this type persist for

about three or four weeks, after which the ocular signs gradually disappear. In the chronic type the symptoms are similar to those observed in the subacute type, but they are prolonged over a period of eight months or longer. The exophthalmometer is an aid in diagnosing doubtful cases of exophthalmos, this instrument also assists in judging the results of treatment. The treatment in these cases is concerned not only with the ocular condition but also with the sinus disease which is its primary cause. The prognosis is generally favorable in all types of cases, especially if the ocular and general symptoms are not progressive.

### Arkansas Medical Society Journal, Fort Smith

32 149 160 (March) 1936

Ethics. M E McCaskill Little Rock —p 149  
Value of Combining County Medical Societies for Scientific Programs. A M Gibbs Hamburg —p 151  
Value of Public Relations Committee in the County Medical Society. D A Rhinehart Little Rock —p 152  
Arranging the County Society Program. R B Robins Camden —p 153  
How the Arkansas Medical Society May Help the County Societies. A B Dickey Prescott —p 154

### Johns Hopkins Hospital Bulletin, Baltimore

58 65 136 (Feb) 1936

Clinical Observations on Importance of Vestibular Reflexes in Ocular Movements. Effects of Section of One or Both Vestibular Nerves. F R Ford and F B Walsh Baltimore —p 80  
Clinical Study of Control of Bladder by Central Nervous System. O R Langworthy, L G Lewis, J E Dees and F H Hesser Baltimore —p 89  
\*Diagnosis of Obscure Fever. I. Diagnosis of Unexplained Long Continued Low Grade Fever. L Hamman and C W Wainwright Baltimore —p 109

**Diagnosis of Obscure Fever**—Hamman and Wainwright divide cases of obscure fever into two groups. The first group comprises cases with low grade fever, the temperature only occasionally exceeding 100 F and rarely reaching 101 F. The symptoms are not severe and the patients are usually ambulant. The second group comprises cases with higher fever and symptoms that are usually incapacitating. The patients as a rule are confined to bed. Without being able to determine accurately the cause of the fever in any specific case, one may conclude that it must have been due to (1) some mild specific infection, tuberculosis, Malta fever, rheumatism, (2) some focus of septic infection, tonsillitis, appendicitis, pyelitis or uncertain causes about which instruction is meager, metabolic disorders, neurogenic fever. Of the uncertain causes it may be said that there can be little doubt that hysterical manifestations may be accompanied by fever. In psychotic patients, whether agitated or depressed a little fever is almost regularly observed in spite of the fact that careful examination reveals no cause for its occurrence other than the abnormal mental state. Psychiatrists have often commented on variations in the temperature of psychoneurotic patients regularly recurring in relation to psychiatric treatment and mental trauma. That obscure clinical condition called effort syndrome, exhaustion syndrome, disordered action of the heart or neurocirculatory asthenia is nearly always accompanied by slight fever. Finally, some few persons may have a thermoregulatory mechanism set at a high level and for them a temperature between 99 and 100 F may be normal. Even though the physician may be convinced that such anomalies do sometimes occur he is never justified in making this diagnosis under any concrete circumstances.

### Journal of Comparative Neurology, Philadelphia

63 173 368 (Feb 15) 1936

First Neurofibrillar Development in Albino Rat Embryos. W I Windle and R F Baxter Chicago —p 173  
Development of Reflex Mechanisms in Spinal Cord of Albino Rat Embryos. Correlations Between Structure and Function and Comparisons with Cat and Chick. W F Windle and R E Baxter Chicago —p 189  
Reaction of Bladder to Stimulation of Points in Forebrain and Midbrain. H Haber, H W Magoun and S W Ranson Chicago —p 211  
Effect of Lesions in Central Nervous System of Rat on Reflex Time. R A Herren, L E Travis and D B Lindley Iowa City —p 241  
Development and Morphology of Cerebellum in Opossum. Part II. Later Development and Adult. O Larell Portland Ore —p 251  
Conduction Pathways in Cerebral Peduncle of Amblystoma. C J Herrick Chicago —p 293  
Pupilloconstrictor Area in Cerebral Cortex of Cat and Its Relationship to Pretectal Area. R W Barris Chicago —p 353



## Journal of Immunology, Baltimore

30 109 212 (Feb.) 1936

- Serologic Comparison of Phosphoprotein of Serum of Laying Hen and Vitellin of Egg Yolk R R Roepke and L D Busnell Manhattan Kan—p 109
- Studies on Tetanus Toxoid I Antitoxic Titer of Human Subjects Following Immunization with Tetanus Toxoid and Tetanus Alum Precipitated Toxoid F G Jones and J M Moss Indianapolis—p 115
- Comparisons of Various Methods for Routine Titration of Types I and II Antipneumococcus Horse Serums L A Barnes Charlotte M Clarke and Eleanor C Wright Boston—p 127
- Effect of Gonadotropic and Estrogenic Hormones on Agglutinin Response to Bacillus Pertussis in Immature Animals J H Dingle R K Meyer and E L Gustus Kalamazoo Mich—p 139
- Development of Foreign Protein Sensitization in Human Beings J R Mote and T D Jones Boston—p 149
- Mass Factor in Immunologic Studies on Viruses M H Merrill Princeton N J—p 169
- Quantitative Studies on Neutralization of Equine Encephalomyelitis Virus by Immune Serum I Combination of Virus and Antibody in Vitro M H Merrill Princeton N J—p 185
- Id II The Percentage Law M H Merrill Princeton N J—p 193
- Study of Virulence of Meningococcus Strains and of Protective Activity of Antimeningococcus Serums Sophia M Cohen Albany N Y—p 203

## Journal of Thoracic Surgery, St Louis

5 225 336 (Feb.) 1936

- \*Pleuropulmonary Complications of Amebiasis Analysis of One Hundred and Fifty Three Collected and Fifteen Personal Cases A Ochsner New Orleans and M DeBakey Lake Charles La—p 225
- Bronchography Following Thoracoplasty for Tuberculosis H L Cabitt J J Singer and E A Graham St Louis—p 259
- \*Surgical Revision of Unsatisfactory Thoracoplasty by Reoperation and Extrapleural (Subscapular) Packing T J Kinsella Oak Terrace Minn—p 267
- Resection of Medial Portion of Scapula for Relief of Pain and Disability Following Thoracoplasty Report of Case C R Steinke and J T Villani Akron Ohio—p 286
- \*Roentgen Study of Mode of Development of Encapsulated Interlobar Effusions L G Rigler Minneapolis—p 295
- Observations on Effect of Hyperventilation on Vital Capacity of Surgical Patients with Some Remarks on Effect of Postoperative Complications and Influence of Abdominal Binders and Adhesive Strapping J H Powers Cooperstown N Y—p 306
- Aseptic Anemic Infarct of Lung with Sequestration Case Report I A Bigger and G D Vermilva Richmond Va—p 315
- Maggot and Allantoin Therapy in Tuberculous and Nontuberculous Suppurative Lesions of Lung and Pleura Report of Eight Cases N Bethune Montreal—p 322

**Pleuropulmonary Complications of Amebiasis**—Ochsner and DeBakey state that pleuropulmonary complications of amebiasis occurred in 158 per cent of 2490 reported and in 157 per cent of their ninety-five consecutive cases of amebic hepatic abscess. Men are involved much more frequently than women. Such complications occur as a rule from an extension of amebic hepatic abscess. Perforation of the abscess occurs rarely into the free pleural space but more frequently into the lung or bronchus. Exceptionally hematogenic pulmonary amebic abscesses may occur. Pleuropulmonary amebic infections are classified into five groups, depending on the type of pleuropulmonary involvement: (1) hematogenic pulmonary abscess without liver involvement; (2) hematogenic pulmonary abscess and independent liver abscess; (3) pulmonary abscess extending from liver abscess; (4) bronchohepatic fistula with little pulmonary involvement; and (5) empyema extending from liver abscess. The clinical manifestations of pleuropulmonary amebiasis consist chiefly of cough and expectoration, fever, diarrhea, enlarged and tender liver, pain in the chest and cachexia. Cough and expectoration were observed in 92.5 per cent of the collected cases, fever in 43.2 per cent, a history of a previous diarrhea was obtained in 41 per cent, an enlarged liver present in 39.7 per cent, diarrhea at the time of admission in 33.5 per cent, and pain in the chest in 31.3 per cent. The expectoration of chocolate sauce pus is indicative of a communication between a liver abscess and a bronchus and is of diagnostic importance. Pulmonary manifestations consist of consolidation and cavitation. There is a moderate leukocytosis without concomitant increase in the polymorphonuclear leukocytes; marked leukocytosis is indicative of a secondary infection. Roentgen examination shows elevation and fixation of the diaphragm and a shadow at the right base particularly in those cases in which a pulmonary abscess extends from a liver abscess. The shadow is triangular with the base below and the apex above. Diagnosis can be established by the charac-

teristic chocolate sauce pus and the finding of amebas in the sputum and aspirated material. The prognosis in pleuropulmonary amebiasis is dependent on the type of the lesion and the therapy employed. The mortality rate in the collected series was extremely high (41.1 per cent). The treatment of pleuropulmonary amebiasis consists of the administration of emetine and the aspiration of those abscesses not sufficiently evacuated through the bronchus. Open drainage should never be done except in cases in which there is secondary infection. The incidence of recovery in cases treated without emetine in the collected cases was 43.9 per cent and in the authors' cases 40 per cent, whereas in cases in which emetine was administered the respective incidences were 91.8 and 100 per cent.

**Surgical Revision of Unsatisfactory Thoracoplasty**—Kinsella obtained improved results in a number of patients who were subjected to reoperation whose thoracoplasties have proved unsatisfactory. When combined with some form of extrapleural (subscapular) packing the results have apparently been more certain, although the procedure is somewhat more formidable. The results to date justify a more extensive use of this procedure. The application of some type of subscapular pressure at the time of primary operation would seem advisable in certain selected cases and may obviate the necessity for reoperation later.

**Roentgen Study of Encapsulated Interlobar Effusions**—Rigler presents roentgen observations of cases of pleural effusion, of cases of pneumonia and one detailed report of a case in which there was an encapsulated interlobar empyema in order to demonstrate that: 1 Free pleural effusions may extend into the interlobar fissures, particularly in the horizontal positions; 2 Roentgenologically these extensions may simulate encapsulations; 3 Encysted interlobar effusions may develop as a result of such an extension if adhesions form during the course of the effusion; 4 This may be the common mechanism for the development of the interlobar encapsulations which complicate pneumonia.

## Laryngoscope, St Louis

46 85 168 (Feb.) 1936

- Can Certain Diseases of Ear, Nose and Throat Especially Degeneration of Eighth Nerve Be Classified as Deficiency Diseases? G Selfridge San Francisco—p 85
- Bacteriophage Therapy in Nasal and Aural Diseases S L Ruskin New York—p 107
- Thyrotoxic Treatment of Otosclerosis Preliminary Report M A Goldstein St Louis—p 112
- Auditory Function Studies in an Unselected Group of Pupils at the Clarke School for the Deaf II Classification According to Type and Level of Graphy by Air Conduction Ruth P Gunder and Louise A Hopkins Northampton Mass—p 120
- Neoplasm of Antrum E I Berger and M D Berger Brooklyn—p 137
- New Retractor for Caldwell-Luc Operation A M Alden St Louis—p 153

## Military Surgeon, Washington, D C

78 161 240 (March) 1936

- Importance of Preventive Medicine from Standpoint of Medical Officer of the United States Army H S Cumming—p 161
- The Late King of Great Britain and the First American Army Contingent to Reach Europe in the World War H L Gilchrist—p 168
- Yaws on the Island of Guam C S Butler—p 174
- Some Remarks About Blood Pressure J C Carballera—p 183
- Scarlet Fever Its Management and Prevention in the CCC H F de Feo—p 187
- Tularemia in Rocky Mountain Sector of Western Front Fort Douglas CCC District T W Burnett—p 193
- General Hospital I E Hetrick—p 199
- The Veterinary Corps Its Origin Functions and Importance O E McKim—p 204
- \*Treatment of Acute Colds with Bacteriophage Lysed Bacterial Antigen O B Schreuder—p 211

**Treatment of Acute Colds with Bacteriophage**—In 1933 Schreuder gave bacteriophage-lysed bacterial antigen subcutaneously in dosages of 0.4, 0.7 and 1 cc on three successive days to 169 patients with symptoms limited to the nose and upper part of the pharynx who had the cold less than forty-eight hours. Sixty-six patients were definitely improved, sixty-five were slightly benefited and thirty-eight experienced no relief. In view of these results it was decided to treat the common infections of the respiratory tract in the winter of 1934-1935 by the same means and to run a control by giving inoculations with sterile physiologic solution of sodium chloride.



No other treatment was given except general advice as before. Of twenty-nine cases treated by injections of bacteriophage-lysed bacterial antigen ten were definitely benefited, nine slightly benefited and ten unimproved. Of the thirty-one patients given injections of physiologic solution of sodium chloride sixteen were definitely relieved, ten experienced slight benefit and five had no relief. The conclusion is that subcutaneous injections of bacteriophage-lysed bacterial antigen is of no benefit in the treatment of acute colds.

### Nebraska State Medical Journal, Lincoln

21 81 120 (March) 1936

- The American and European Cancer Control Problem A. Soland Los Angeles—p. 81  
Paroxysmal Hypertension A. Sachs and B. C. Russum Omaha—p. 84  
Value of Electrocardiogram Review of Five Hundred Records O. A. Reinhard Lincoln—p. 87  
\*Common Errors in Diagnosis and Treatment of the Psychoneurotic Patient Study of One Hundred Case Histories A. E. Bennett and E. V. Semrad Omaha—p. 90  
Pneumonia in Children F. S. Clarke Omaha—p. 93  
Traumatic Cerebral Edema in a Child of Six Months with Associated Skull Fracture F. L. Wilson and R. I. Gorrell Stuart—p. 95  
Diagnosis and Treatment of Anemia III Pernicious Anemia J. C. Sharpe Omaha—p. 98

**Diagnosis and Treatment of the Psychoneurotic Patient**—Bennett and Semrad found that seventy-two of 100 psychoneurotic patients were admitted with erroneous diagnoses of some severe organic disease. In twenty-nine instances serious organic gastro-intestinal disease was diagnosed yet did not exist. In fourteen cases endocrine diagnoses were made usually of toxic hyperthyroidism when anxiety hysteria was the disabling disorder. Fifteen patients were admitted as suffering from serious organic cerebral disease. Other diagnoses of serious organic trouble referable to almost all the bodily systems were made erroneously. These mistakes in diagnosis come largely from lack of a general understanding of the principles of psychopathology, failure to elicit an adequate history and to consider situational and psychogenic factors, and failure to appreciate the importance of the personality makeup of the patient. In evaluating symptoms many physicians overlook the emotional setting out of which the physical sensations develop in the neurotic patient. Ill advised therapeutic procedures were very common in the group, 179 surgical operations had been performed on seventy-three patients, at least half of which were probably unnecessary. Adequate psychogenic and personality factors to account for the etiology were found in all cases. At least half of the patients had marital domestic or sex conflicts. Hypersensitive and introverted constitutional traits were frequent. Economic conflicts and hereditary factors accounted for the remainder. After psychotherapeutic procedures 70 per cent of the patients were definitely improved. More adequate training in the principles of psychobiology and psychopathology are necessary for the general physician to understand the psychoneurotic patient. Psychotherapy is the logical approach and offers the only scientific method of relief for this large group of maladjusted personalities.

### New England Journal of Medicine, Boston

214 341 400 (Feb 20) 1936

- Endometriosis with Particular Reference to Conservative Treatment R. B. Cattell and N. W. Swinton Boston—p. 341  
Hutchinson Boeck's Disease (Generalized Sarcoidosis) Historical Note and Report of Case with Apparent Cure F. T. Hunter Boston—p. 346  
Foot Stitches and Surgery F. J. Cotton Boston—p. 353  
Effect of Curamine on Postpartum Patients Under Analgesic Influence of Some Barbituric Acid Drugs A. A. Levi Boston and C. M. Krinsky Newark N. J.—p. 362  
The Personality of the Physician J. H. Pratt Boston—p. 364  
Abdominal Compression and Vaginal Tamponade in Treatment of Abruptio Placentae R. J. Hefferman Boston—p. 370  
Inversion of Uterus in Two Consecutive Pregnancies Case Report R. E. Stewart Boston—p. 373

**Hutchinson-Boeck's Disease**—The evidence from previously reported cases and from the case cited by Hunter is that Hutchinson Boeck's sarcoid is a systemic disease. It affects at times not only the skin but the lymph glands—both peripheral and those at the hilus of the lungs—the spleen, the parenchyma of the lungs, the phalanges of the fingers and toes, the mucous membranes, the conjunctivae and the parotid gland. In its power of invading many organs it simulates lympho-

blastoma. Iritis is not infrequently a precursor or accompanies the skin lesions. One of the probable reasons why it has been overlooked so long by the internist is the multiple and formidable nomenclature given it by dermatologists and others. The case presented showed changes limited to the skin and reticulo endothelial system—lymph nodes and spleen, for, although Kismeyer doubts the involvement of the spleen in many of the reported cases, the fact that under treatment this patient showed a decrease of the splenic enlargement which paralleled the regression of the lymphadenopathy cannot, in the author's judgment, be dismissed as fortuitous. It seems logical, therefore to assume that the spleen would have shown the same morbid histology as that demonstrated in the biopsy of a lymph node, typically sarcoid. This malady offers a possible solution to another problem, that of the true diagnosis in instances in which apparently healthy patients without skin lesions, give evidence of increased hilus shadows accompanied by diffuse infiltration of the lungs at roentgen examination, an appearance not infrequently reported by roentgenologists as tuberculosis. More careful roentgen and clinical observation may in the future determine whether these patients are suffering from Hutchinson-Boeck's "sarcoid."

### New Jersey Medical Society Journal, Trenton

33 65 126 (Feb) 1936

- Clinical Manifestations of Early Childhood Tuberculosis S. B. English and M. Gross Glen Gardner—p. 71  
Pathology of Childhood Tuberculosis C. R. Brown Arlington—p. 77  
Institutional Treatment of the Epileptic Child B. S. Baker Skillman—p. 78  
Effect of Urban Conditions on Temperament of the Child J. S. Plant Newark—p. 83  
\*Endocrinology and the Convulsive State A. W. Pigott Skillman—p. 86  
Addison's Disease Report of Case J. M. Coppoletta Cliffside Park and W. J. Monaghan Laurel Hill—p. 90

**Endocrinology and Convulsive Conditions**—Pigott is of the opinion that in a certain proportion of convulsive conditions there is a possible relationship between some endocrinopathy and the convulsions. There are too many epileptic patients coming into institutions showing gross evidence of dysfunction of the glands of internal secretion to disregard them entirely as an etiologic or a concomitant factor, and the fact that substitution therapy has failed to relieve the attacks in most of these cases is not sufficient evidence for one to ignore the endocrines, but rather a reflection on one's ability to determine which gland or glands are at fault and the inadequacy of the preparations used in the treatment. However, the author hesitates to make a positive claim to a specific connection between the endocrines and convulsions, especially epileptic convulsions, and he bases his deductions almost entirely on clinical observation with little or no experimental data to substantiate them. He discusses each of the endocrine glands separately. In addition to a consideration of each of the endocrines as a separate unit, there are numerous interrelationships that probably play a part in the production of convulsive seizures, and, as Turner has pointed out, the rather frequent occurrence of physiologic and morbid changes in the endocrines in cases of epilepsy gives an indication of the relationship of these glands to this condition and one is readily able to suppose that convulsive crises may be lessened by a normal physiologic balance and aggravated by an abnormal balance.

### West Virginia Medical Journal, Charleston

32 101 148 (March) 1936

- Urinary Calculi Their Experimental Production and Solution with Clinical Application C. C. Higgins Cleveland—p. 101  
Nephralgia Symptomatology Diagnosis and Treatment A. E. Goldstein Baltimore—p. 107  
Significance of Cardiac Arrhythmias W. C. Stewart Charleston—p. 113  
Ancient Egyptian Mummification and Its Effect on Medicine Pathology and Therapeutics J. K. Cooper Premier—p. 117  
Treatment of Recent Wounds W. M. Junkin Elkans—p. 122  
Leukorrhea Due to Trichomonas vaginalis A. P. Hudgins Charleston—p. 127  
Treatment of Pellegrini Stieda Syndrome Report of Two Cases E. B. Jensen Charleston—p. 132  
Clean Milk and How to Get It D. B. Lepper Bluefield—p. 135  
Purpura Fulminans Report of Case G. M. Harsha Sistersville—p. 137

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Anæsthesia, Manchester

13 41 88 (Jan.) 1936

- \*Anesthesia: Its Present and Future W. S. Sykes—p. 41  
Investigations into Urea Nitrogen Content of Blood Following Anesthesia Eileen A. Boyd introduction by R. Jarman—p. 56  
Combined Evipan-Novocain Anesthesia G. Bankoff—p. 66

**Anesthesia**—Sykes points out that it is possible to reduce postoperative mortality below the 4 to 5 per cent average. Certain minimal essentials are required to create a satisfactory service: 1. Resident anesthetists should be appointed at all large hospitals without exception. 2. No person should be appointed as visiting anesthetist without previous experience as resident, thus bringing anesthesia into line with all other branches of medicine and surgery. 3. Anesthetic clerkships should be compulsory for the better instruction of students. 4. It should be an absolute rule that no dresser be allowed to give an anesthetic except under direct supervision. 5. Patients in private wards should invariably get what they pay for—the personal care of an experienced anesthetist. Under no circumstances should the same fee be payable to a senior member of the staff and to a newly qualified house surgeon. 6. The equipment of many hospitals requires a drastic overhauling. Good modern gas machines should always be available. 7. These machines, though robust, are not fool proof. Therefore, no one except people familiar with their construction and mechanism should be allowed to use them or they will never be in working order, nor will satisfactory anesthesia be obtained. Financial considerations in the form of repair bills may thus do what the interests of the patient have failed to do, that is, protect patients against the dangers of unskilled and unsupervised anesthesia. 8. As the science of anesthesia is constantly changing and constantly advancing in common with the rest of medicine and surgery, provision should be made so that suggestions for reforms and improvements may be brought to the notice of the governing body without loss of time.

## East African Medical Journal, Nairobi

12 297 324 (Jan.) 1936

- Loose Stools with Particular Reference to Amebiasis H. C. Trowell—p. 299  
Value of Serum in Treatment of Cerebrospinal Fever R. P. Cormack—p. 311

## Journal of Tropical Medicine and Hygiene, London

39 112 (Jan. 1) 1936

- Vitamin A Prophylaxis in Epidemic Meningococcal Meningitis N. L. Corkill—p. 1  
\*Yeastlike Fungi in Sputums of Tuberculous Patients S. H. Ying—p. 4

39 13 24 (Jan. 15) 1936

- Contribution to the Knowledge of Lymphogranulomatosis Venerea as a General Disease W. E. Coutts—p. 13  
Resurvey of Hookworm Disease in Fiji in 1935: Ten Years After Mass Treatment S. M. Lambert—p. 19

**Yeastlike Fungi in Sputums of Tuberculous Patients**—Ying examined the sputums of 100 patients with pulmonary tuberculosis and twenty normal subjects. The patients are instructed to brush their teeth and to wash their oral cavities with Dobell's solution. A few minutes afterward the sputums expectorated are collected in different sterilized receptacles and are immediately washed with 70 per cent alcohol for five minutes and with physiologic solution of sodium chloride for a few minutes and then cultured on Sabouraud's medium and 8 per cent dextrose agar respectively. Of the 100 specimens nine showed positive cultures and in the twenty healthy individuals there was one positive culture. In the positive cultures tiny cream colonies were noticed on the second to the fourth day. The author classifies the ten yeastlike organisms on the bases both of morphology and of their biochemical characteristics. Basing the classification on the morphologic characteristics according to Langeron he classifies his strains as *Candida Mycocandida*, *Mycotorula* and *Mycotoruloid*. Basing the classification on their biochemical characteristics after Castellani, they are classified as *Monilia bronchitica* Castellani, *Monilia pinovi* Castellani, *Monilia krusei* Castellani, *Monilia tropicalis*

Castellani and *Monilia (cryptococcus) macroglossiae* Castellani. Animal inoculation shows that these monilias obtained from the sputums of the tuberculous patients are more pathogenic. From his study the author is of the opinion that the presence of yeast like fungi in the lung is possible without giving rise to symptoms or signs. Or it may be that these symptoms are so slight that they do not attract the attention of the patient, and at the same time the signs are so slight that they cannot be detected clinically.

## Medical Journal of Australia, Sydney

1 41 72 (Jan. 11) 1936

- Surgical Sequels of Acute Cerebral Trauma G. Phillips—p. 41  
Sequels of Head Injuries C. G. McDonald—p. 45  
\*Acute Upper Abdominal Pain J. C. Storey—p. 52

**Acute Upper Abdominal Pain**—Storey divides true abdominal pain of the upper part of the abdomen into three classes: (1) the colic due to the spasmodic contraction of a hollow viscus or duct during its attempt to expel anything acting as an obstruction, (2) the continuous pain of tension in similar organs and (3) pain due to irritation of the peritoneum. The worst pain of the upper part of the abdomen is probably associated with acute hemorrhagic pancreatitis, and no less unbearable is that of perforation of a duodenal ulcer. Gallstone colic can be almost as bad. When one is called to a patient who is overwhelmed with pain in the upper part of the abdomen, action should be prompt, for delay may mean death. The signs, symptoms and treatment of gallstone colic, cholecystitis, acute pancreatitis and perforation of duodenal ulcer are heralded by pain in the upper part of the abdomen are discussed. A leaking or ruptured hydatid cyst must be considered in all patients with acute pain of the upper part of the abdomen. Coronary thrombosis is a fashionable diagnosis, and while it is bad enough to mistake this condition for a perforation, the reverse error is worse. Spasm of the celiac vessels can be mistaken for a surgical emergency. The author has seen a patient with tetanus admitted to the hospital with a diagnosis of an abdominal crisis. Renal colic is sometimes projected forward, but as a rule no confusion need arise. Perforation of a gastric carcinoma is rare, as is the bursting of the gallbladder. Malaria may mimic any disease. Acute appendicitis is the most common cause by far of all abdominal emergencies, and the initial pain is often high, so that it may be difficult to exclude the old favorite.

## Practitioner, London

136 121 236 (Feb.) 1936

- Carcinoma of Colon C. Gordon Watson—p. 121  
Treatment of Colitis S. W. Patterson—p. 136  
Pruritus Ani W. J. O'Donovan—p. 148  
Colostomy and Its Management W. B. Gabriel—p. 159  
Hemorrhoids C. N. Morgan—p. 172  
Fistula in Ano O. V. Lloyd Davies—p. 186  
Rickets J. C. Spence—p. 196  
Early Diagnosis of Infantile Paralysis and Its Treatment J. M. Smellie—p. 203  
Treatment of Osteo Arthritis of Hip Note G. Slot—p. 212  
Favorite Prescriptions XIV Pharmacopoeia of Westminster Hospital S. Woodward and J. Mindline—p. 214

## Journal of Oriental Medicine, Dairen, South Manchuria

23 85 114 (Dec.) 1935

- Radiography of Vas Deferens (Ampulla) and Seminal Vesicles II Yanagihara and T. Miyata—p. 85  
Sweat Reflexes Due to Changes in Posture of Human Body K. Ogata and T. Ichihashi—p. 92  
Functional Variations in Human Sweat Glands with Remarks on Regional Difference of Amount of Sweat K. Ogata—p. 98  
Hydrogen Ion Concentration Within Histocytes Storing and Phagocytic Functions Part II Phagocytosis or Storing of Fats and Lipids S. Hatano S. Iwata T. Mori S. Namba H. Takamatsu M. Arai S. Baba T. Goto S. Yasutake and S. Hamamoto—p. 107  
Effect of Ultraviolet Irradiation on Wassermann Reaction and Aschheim Zondek Pregnancy Reaction M. Murayama—p. 103  
Statistical Results of Treatment of Various Dermatoses with Patient's Own Blood Which Has Been Subjected to Ultraviolet Irradiation M. Murayama—p. 104  
Metabolism in Endemic Goiter of Jehol Digestion and Resorption of Hakumai Japanese Gram U. Takei—p. 105  
Metabolism in Endemic Goiter of Jehol Digestion and Resorption of Sorghum Millet U. Takei—p. 108  
Tubercle in Healthy School Children T. Ota—p. 109  
Studies on Trichomonas Vaginalis Donne V. Vital Staining of Trichomonas Vaginalis K. Matsuda—p. 109  
Catalogue of Dysentery Bacilli S. Fuliuda—p. 110  
Primary Lymphogranuloma of Stomach M. Imai—p. 113

## Revue Franc de Gynec et d'Obst, Paris

30 1003 1070 (Dec.) 1935

- \*Treatment of Functional Disorders of Menstruation by Weak Doses of Roentgen Rays Applied to Ovaries and Hypophysis W Wittenbourg and J Porthovnik—p 1003  
Postclimacteric Hemorrhages and Their Relation to Malignant Neoplasms W Wittenbourg and A Zlatmann—p 1026  
Urinary Tract Diseases as Indication for Sterilization of Women B Zlatmann—p 1054

**Menstrual Disorders Treated by Roentgen Rays**—Wittenbourg and Porthovnik report observations on 117 young women with functional menstrual disturbances treated by roentgen rays. All seemed to be connected with the ovarian function but presented considerable variation in symptoms. Sometimes the difficulty was in the length of the cycle sometimes hypomenstruation or hypermenstruation, and sometimes a combination of the two. The cyclic disorders or their combination with hypomenstruation respond best to roentgen therapy. Amenorrheas are more refractory. The prognosis as to complete cure is less favorable when the patient is older. It becomes especially uncertain when the patients presenting amenorrhea are more than 30 years of age. The more hypoplastic the uterus, the less is the chance for a good effect. In some cases (about 15 or 18 per cent) the sterility that had accompanied the menstrual disorders also disappeared. The author concludes that this method of treatment of menstrual disorders of functional nature in young women should be practiced only by an experienced roentgenologist in conjunction with a capable gynecologist.

## Polichinico, Rome

43 227 282 (Feb 10) 1936 Practical Section

- \*Arteriography of Thoracic Aorta by Puncture of the Ascending Aorta or the Left Ventricle I Nuvoli—p 227  
Celiac Disease Case E Mondolfo—p 237  
Combined Treatment with Ethylchaulmoogra and Ethylmorphine Preparations in Diseases of Respiratory Tract F Falasca—p 245

**Arteriography of Thoracic Aorta**—Nuvoli performed arteriography of the thoracic aorta as a means of diagnosis in two cases of aneurysm by introducing the contrast medium into the ascending aorta in one case and into the left ventricle in the other. The puncture of the ascending aorta and the injection of 28 cc of a 100 per cent solution of sodium iodide, given at a constant pressure of 1,800 Kg during the injection did not produce complications in the first case while in the second the puncture of the left ventricle and the injection of the same amount of the solution, given at a constant pressure of 2,200 Kg, produced a syncope of brief duration followed by bradycardia (56) which lasted for thirty-six hours. The author believes that the syncope was due to the sudden distention of the myocardium and increased intraventricular pressure caused by the injection. He concludes that, while arteriography of the thoracic aorta by puncture of the ascending aorta is justified, puncture of the left ventricle should not be performed unless a substance giving satisfactory shadows without producing increase of the intraventricular pressure can be discovered.

## Prensa Medica Argentina, Buenos Aires

23 419 480 (Feb 12) 1936

- Bronchography in Asthma and Chronic Bronchitis N Romano R Eyberabide and R Tarradellas—p 419  
\*Atrophy of Hemidiaphragm Following Phrenicectomy J C Galan G Fonseca and J Dutreux—p 427  
\*Failure in Tubal Sterilization A G Peralta Ramos—p 430  
Necropsy and Protomesosystolic Murmurs in Infarct of the Apex Necropsy Confirmation of Diagnosis in a Case R Lorenzo and D Boto—p 435  
Amino-Acids in Treatment of Gastrointestinal Ulcers M Mastronardi and F Bagnasco—p 443  
Fracture of Larynx Case A Bercovich—p 456

**Atrophy of Diaphragm Following Phrenicectomy**—Galan and his collaborators state that the results of experiments and necropsies prove that a well performed phrenicectomy with simple resection of the phrenic nerve results in the production of atrophy of the muscles of the corresponding hemidiaphragm. The anatomopathologic study performed by the authors in two cases in which the paralysis of the diaphragm had lasted for three years and a half and for eight months showed that the hemidiaphragm corresponding to the phrenicectomized side had undergone the following changes: intense atrophy of the muscle

a large part of which had disappeared and had been replaced by cellulosic fatty tissues, and intense alterations of the remaining muscular fibers, a large portion of which were dissociated and thinned. The authors state that the anatomopathologic changes of the hemidiaphragm after phrenicectomy prove that the phrenic nerve is the one which controls movement of the diaphragm and that, if there is any collateral motor innervation due to the presence of intercostal, either contralateral or accessory phrenic nerves, and other nervous impulses, it is insufficient to maintain the trophic conditions of the diaphragm after phrenicectomy and still more insufficient to maintain the motor functions of the diaphragm after the same operation.

**Failure in Tubal Sterilization**—Peralta Ramos states that all the methods used for permanent sterilization of women may prove inefficient in preventing pregnancy. The tubes may regain their functions by a partial reopening or by replacing themselves in the abdominal cavity after operations, such as simple ligation of the tubes, ligation followed by section, partial or complete tubal resection, peritonization of tubal stumps, transposition of the tubes or the combined methods of these operations. Total removal of both tubes followed by performance of a cuneiform excision of the fundus of the uterus and by a double seroserosal and musculomuscular suture is the operation that offers the best chance of preventing pregnancy, but even this is relative.

## Beitrage zur Klinik der Tuberkulose, Berlin

87 423 518 (Feb 20) 1936

- \*Diaplacental Transmission of Tuberculosis F Lucksch—p 423  
\*Atelectasis H W Knipping—p 448  
Estimation of Pulmonary Blood Perfusion H W Knipping—p 465  
Disseminated Acute Tuberculous Panangitis F Orsos—p 488  
Development of Corpora Amylacea in Lung F Orsos—p 500  
Study of Tuberculous Giant Cavities J L Garcia y Garcia Mifion—p 509

**Diaplacental Transmission of Tuberculosis**—Lucksch maintains that congenital tuberculosis is comparatively rare. The most frequent kind of transmission through the mother is by way of the placenta. However, there seems to be a disproportion between the incidence of placental tuberculosis and of congenital tuberculosis, and it seems difficult to understand why a tuberculosis of the placenta should remain without influence on the fetus. This problem and the frequent reports about filtrable forms of the tubercle bacillus induced the author to make further studies on the problem of congenital tuberculosis. He made histologic and animal experiments on placental materials, animal experiments with the blood of umbilical cords, and cultural and animal studies on the organs of fetuses. He frequently detected changes in the placenta and decidua which although they appeared nonspecific and did not present the typical aspects of tuberculosis, nevertheless were proved to be of a tuberculous nature in the animal test. Bacteriologic studies and animal experiments on the blood of umbilical cords and on the fetal organisms revealed the presence of filtrable forms of the tuberculosis virus. The author believes that the tuberculosis virus has become mitigated in recent times, pointing out that filtrable forms of the virus nonspecific tissue changes and mitigation of the causal organism mutually explain and support one another. It appears that infection as well as immunization of the fetus is much less frequent by the blood stream (by way of the placenta) than is the case after birth by the respiratory or digestive tracts or by the parenteral route.

**Atelectasis**—Knipping stresses that in this report he discusses only the type of atelectasis that develops in case of closure of the air passages. He disregards entirely compression atelectasis and atelectasis of the new-born. In case of acute atelectasis of larger parts of the lung the clinical aspects are usually pain on the diseased side particularly under the sternum, acceleration of the pulse and normal or elevated temperature. There is more dyspnea than cyanosis. The diseased side drags and seems smaller than the normal one. The intercostal spaces are retracted, the heart is displaced toward the diseased side and the diaphragm stands higher than normal. The respiratory sounds are reduced over the diseased part of the lung and there may be moist and sonorous rales. The percussion sound is shortened. Exudate and spontaneous pneumothorax can usually be ruled out. The shadow of the diseased

part of the lung is unusually homogeneous and readily differentiated from pneumonic and other infiltrates. However, in the majority of cases it is impossible to demonstrate the closure of the pertaining bronchus. Preceding pulmonary hemorrhage suggests a stenosing clot. But the occlusion may be caused also by syphilitic changes of the bronchial wall, bronchial calculi, bronchial edema, foreign bodies, aneurysms, swelling of the hilus glands and bronchial tumors. After discussing these various forms of atelectasis, the author gives his attention to the small atelectases and to the forms of atelectasis that develop in tuberculosis. As an accompanying symptom of tuberculosis, atelectasis may be a favorable factor. He discusses the therapeutic use of artificial bronchial closure and atelectasis. He suggests that it might be used in cavities that do not yield to pneumothorax therapy. To be sure, the artificial closure of the bronchus should not be irreparable.

### Strahlentherapie, Berlin

55 193 368 (Feb 26) 1936 Partial Index

- \*Desensitization of Mucous Membrane in Protracted Fractional Roentgen Irradiation R. Glauner—p 195
- Action of Roentgen Rays on Hereditary Substance H. J. Muller—p 207
- Epilation of Head by Roentgen Rays A. Proppe—p 225
- \*Late Effects of Epilation Irradiations in Regard to Mental Development of Child T. Symann—p 248
- Results of Modified Prolonged Irradiation of Exophthalmic Goiter W. Bohme and H. Kuhl—p 262
- Roentgen Therapy Hypertrophy and Focal Infection of Lymphatic Ring of Pharynx R. Torres Carreras and P. Bosch Sola—p 279

**Desensitization of Mucous Membrane in Fractional Roentgen Irradiation**—Glauner points out that in the course of protracted fractional roentgen irradiations, particularly in case of malignant tumors of the oral cavity, of the pharynx and of the larynx, there frequently develop reactions in the mucous membrane, which Coutard has called radiation epithelitis. In order to reduce this epithelitis, the author sought to achieve a reduction in sensitivity by reduction of the blood perfusion of the tissues by means of painting with an epinephrine solution of 1:1,000. The anemia thus produced persists for from thirty to forty minutes or even for one hour, that is, for the duration of the irradiation. In order to demonstrate definitely that the epithelitis could be reduced, the author applied the epinephrine solution only to one side. He reports eight cases of oral carcinoma in which he resorted to the one-sided epinephrinization. In five of these cases the epithelitis was completely suppressed on the side that had been treated with epinephrine; in two other cases it was considerably less severe on the treated side, the remaining case cannot be estimated in this connection since epithelitis did not develop on the treated or on the untreated side.

**Late Effects of Epilation Irradiations**—Symann reports the results of examination of fifty-three patients who had been subjected to roentgen epilation during the years from 1917 to 1926 on account of fungus diseases (favus, microsporia) of the head. He points out that in recent years the question has been discussed whether roentgen epilation or thallium epilation is better. This induced him to investigate whether roentgen epilation produces permanent impairments. He found that in four of the patients the hair had become denser after the irradiation, while in eight others it had become less dense. In one case a roentgen lesion was noticeable in the form of atrophy of the skin and bone. The author assumes that the dosage had been incorrect in this case. Eight patients stated that their hair had become darker after the epilation, but in two others the opposite was the case. In fourteen patients the hair had become curly, but the curliness disappeared again in from twelve to eighteen months. One patient who had undergone roentgen epilation at the age of 2 years and 10 months, has complained since that time of frequent headaches and attacks of vertigo. The author thinks that the brain may have been impaired in this case owing to the greater ray sensitivity of the infantile brain. Intelligence tests revealed slight or severe mental deficiency in eighteen patients. However, no definite proof could be furnished that these subnormal intelligences were the result of the roentgen epilation, for in a number of cases the siblings of the patients also were of subnormal intelligence; others had had difficulties with their school work even before

the roentgen epilation, and in still others repeated infectious diseases make it appear possible that an encephalitis is responsible for the mental deficiency. Nevertheless there remain several cases of mental deficiency in which roentgen impairment seems possible.

### Zentralblatt für Gynäkologie, Leipzig

60 369 432 (Feb 15) 1936 Partial Index

- \*Action of Estrogenic Substance on Blood Pressure E. Steinkamm and J. W. Giesen—p 370
- Titration of Estrin and Gonadotropic Hormone in Urine K. Pedersen Bhergaard—p 372
- Gonadotropic Hormone from Urine of Pregnancy M. Ito S. Hajar and F. Ueno—p 375
- Influence of Pregnancy Urine on Surviving Rabbit Uterus K. Fukushima and H. Kameda—p 378

**Action of Estrogenic Substance on Blood Pressure**—Steinkamm and Giesen point out that Liebhart observed in normal, menopausal and castrated women and in those with hypofunction of the ovaries that the injection of estrogenic substance was followed by a reduction in the blood pressure. To determine whether this reduction in blood pressure was really the result of estrogenic substance, the authors made tests on thirty-five women belonging to the same groups as those examined by Liebhart. They observed that the intravenous injection of 200 mouse units of estrogenic substance resulted in a decrease in blood pressure, which in menopausal women reached as high as 25 mm of mercury. Since, at least in menopausal women, the blood pressure is unstable, the authors questioned the justification of ascribing the reduction in blood pressure to the action of estrogenic substance. They repeated the experiments with physiologic solution of sodium chloride and found that the blood sugar curve was influenced in the same manner as had been the case after the injection of estrogenic substance. They conclude that as yet it has not been proved that estrogenic substance reduces the blood pressure.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80 1087 1174 (March 14) 1936

- Exotic Diseases in Holland II. Juxta Articular Nodules H. B. G. Breijer, C. M. Elsbach and E. H. Hermans—p 1101
- Diagnostic Difficulties in Bronchography E. Huizinga—p 1106
- Latent Cases of Epidemic (Lethargic) Encephalitis Resembling Neurasthenia M. Weersma—p 1113
- \*Influence of Endocrine Organs on Genesis of Epilepsy J. J. H. M. Klessens—p 1119

**Influence of Endocrine Organs on Epilepsy**—From a curve indicating the initial ages at which epilepsy appeared in 750 men and 750 women, Klessens draws the following conclusions. Genuine epilepsy most frequently begins at prepuberty, but even in the presence of brain lesions the onset of the attacks may be between 10 and 12 years. The onset of epilepsy is causally related to the processes that lead to sexual maturity, which is shown by the observation that the brisk elevation of the curve indicating this maximal onset shows the same age difference between boys and girls that is shown by sexual maturing itself. After complete sexual maturity has been established, the onset of epilepsy becomes much rarer in boys after the fifteenth and in girls after the eighteenth year. This difference in the lowering of the curves between the sexes is based on delayed pubescence, which, as is the case with lasting incomplete maturity, is found in women more often than in men. The course of the curve in man as well as in woman, no matter how great the difference may be, supports the assumption that the mature gonad checks the irritability of the brain cells or at least originates other processes which promote cerebral response. As the most essential feature of epilepsy is the great lability of various functions, it is obvious that during the period of development epilepsy more often begins in women than in men, 44 per cent of the female cases beginning between 10 and 18 as against 33 per cent in the male. In opposition to the greater vulnerability of women during the period of sexual development, males are found to be more vulnerable in the early years of life showing 26 per cent of cases of epilepsy beginning during this period, while only 20 per cent develop in women, similarly, in adult life epilepsy more often sets in in men (14 per cent) than in women (10 per cent).

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## DEMENTIA PARALYTICA

### RESULTS OF TREATMENT WITH DIATHERMY FEVER

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Since 1917 fever therapy has become an established procedure in the treatment of dementia paralytica. As early as 1887, Wagner von Jauregg started to use fever-producing agents in the treatment of various psychoses of syphilitic origin. Within recent years many reports have accumulated from all over the world on the use of malaria in the treatment of dementia paralytica, and almost without exception these reports have been favorable. There is still some controversy regarding the mechanism of action of this method, and recently considerable interest has been given to the hypothesis that fever alone is the active agent in bringing about successful therapeutic results. Therefore various mechanical methods of producing fever have been devised in this country and have been employed over a period of about six years. Many of the recent reports on the use of hyperpyrexia in the treatment of neurosyphilis have been very favorable and in contrast, there have been a fewer number of unfavorable reports.

It is our purpose in this communication to present the results of the treatment of dementia paralytica with fever produced by diathermy in the Boston Psychopathic Hospital, where this method has been used since the early part of 1931. This report includes a series of thirty-three patients to whom we gave diathermy treatment between February 1931 and February 1935 and the results were analyzed as of February 1935. Therefore the longest period from the time the treatment was given to the time of the analysis was four years, whereas the shortest period in which the patients were studied after the treatment was one year. As will be shown later, some patients in the series received other treatment prior to or subsequent to the treatment with diathermy, but the common factor in the treatment of all the patients was diathermy. This group of cases and the results obtained therefore are not exactly comparable to other series reported by other authors. As previously noted in the reports on malaria

treatment<sup>1</sup> there are hardly two groups of cases in the literature that are comparable with each other, as many variants enter into consideration, such as the exact type and amount of treatment, the selection of patients, and the length of time the patients were followed before the report was made not to mention the personal equation that enters into the conclusions reached. As one goes through the reports, one is struck by the relatively small number of cases that were followed up after diathermy treatment. Therefore percentage statistics in the individual reports are not significant, although it may be fair to compute percentages on the basis of the total number of cases reported in the literature. There are, however, only twenty reports to be found in a search of the literature, including papers dealing with diathermy, radiotherapy, electric blanket and electric cabinet. It is fair to assume that emotion clouds the judgment, in some cases at least, as the enthusiasm of using a new procedure is likely to lead to wishful thinking. On the other hand, there is reason to believe that in at least one instance of reported poor results the desire to defend the superiority of malaria has clouded the judgment.

Table 1 gives in tabular form the reports of all the series of cases of dementia paralytica treated with diathermy and related forms of mechanical hyperpyrexia. In the mass statistics given in this table, made up from series of cases varying from a small number of six to the largest group of 133, it will be seen that the majority of the series number less than fifty cases. It is also apparent that the results vary greatly. For example, Freeman, Fong and Rosenberg<sup>2</sup> report no good remissions in a series of fifty cases treated, while Neymann and Koenig<sup>3</sup> report twelve good remissions and thirty-eight partial remissions out of a total of fifty cases treated with diathermy. The total number of cases reported in this table is 648, of which 177 cases are considered to have good remissions and 260 cases are having a partial remission. This gives a percentage of 27.1 for good remissions and 40.1 for partial remissions.

As in our previous reports on the treatment of dementia paralytica by triparasamide and by malaria, in each case in this series diagnosis was made on the basis of clinical studies and on the spinal fluid, it being held requisite for the diagnosis that the spinal fluid give the typical strong reaction characteristic of the disorder. Table 2 gives a detailed analysis of all the cases in this series. The period of observation after the onset of the symptoms in these cases varied from

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This work was aided by grant from the Division of Mental Hygiene of the Massachusetts Department of Mental Diseases and the DeLamar Fund of the Harvard Medical School.

1. Solomon, H. C. and Epstein, S. H. Dementia Paralytica: Results of Treatment with Malaria in Association with Other Forms of Therapy. *Arch. Neurol. & Psychiat.* 33: 1008 (May) 1935.

2. Freeman, Walter, Fong, T. C. and Rosenberg, S. J. The Diathermy Treatment of Dementia Paralytica. *J. A. M. A.* 100: 1749 (June 5) 1933.

3. Neymann, C. A. and Koenig, M. T. Treatment of Dementia Paralytica. *J. A. M. A.* 96: 189 (May 30) 1931.

two months to four years. It is to be pointed out that those patients who were followed for less than one year died and that no living patient in this series was followed for a period of less than one year.

The results of the treatment are analyzed from two points of view: (1) the clinical status of the patient and (2) the observations on the spinal fluid. Our customary classification consists of the following groups: 1. Under "improved and working" are patients who have made an improvement sufficient to allow them to resume their places in the life of the community and return to work. This group is comparable

TABLE 1—Results of Hypertensive Treatment in Cases of Dementia Paralytica as Reported in the Literature

Author	Type of Fever	Number of Cases	Number of Good Remissions	Number of Partial Remissions
King I C and Cooke E W South M J 23 222 (March) 1930	Diathermy	12	2	8
Mehrten H G and Pouppirt P S Arch Neurol & Psychiat at 2- 700 (Oct) 1929	Hot baths	11	2	4
Neymann C A, and Osborne S L J A M A 90 7 (Jan 3) 1931	Diathermy	2	16	2
Neymann C A and Koenig M J J A M A 90 1808 (May 30) 1931	Diathermy	50	12	35
Wilgus S D and Lurie Leah Arch Neurol & Psychiat 26 602 (Sept) 1931	Diathermy and electric blanket	97	13	59
Perkins C T Am Med 26 349 (Sept) 1931	Diathermy	96	13	10
Hinsie, L E, and Blacklock J R Psychiat Quart 6 191 (April) 1932	Radiotherapy	6	12	24
Prior G P U M J Australia 1 852 (June 2) 1932	Diathermy	16	9	3
Bishop I W Horton C B, and Warren S L Am J M Sc 184 510 (Oct) 1932	Diathermy	18	13	0
Schamberberg J P and Butter worth J Am J Syph 10 519 (Oct) 1932	Diathermy	9	3	3
McKay H A Gray K G and Winans W C Am J P sychiat 12 531 (Nov) 1932	Diathermy	23	3	15
Cortesi (1933) cited by Freeman	Diathermy	8	3	3
Crahan N B J Ment Sc 79 99 (Jan) 1933	Diathermy	23	12	2
Bamford (1932), cited by Free man	Diathermy	13	1	0
Epstein N N and Paul S B Am J Syph 17 12 (Jan) 1933	Diathermy	7	2	3
Worthing H J Psychiat Quart 7 240 (April) 1933	Diathermy	6	1	2
Hover on M A and Morrow G W Illinois M J 64 347 (Dec) 1933	Electric cabinet and typhoid vaccine	2	8	5
Freeman Walter Tong T C and Rosenberg S J J A M 100 1749 (June 3) 1933	Diathermy	50	0	10
Simpson W M Proc Staff Meet Mayo Clin 9 67 (Sept 19) 1934	Kettering hyperthermy	23	15	3
Quillig I G Morgan H P and Sevmour W Med Bull Vet Admin 2 17 (Jan) 1935	Diathermy	133	24	66
Totals		648	177	260
Percentages		100	27.1	40.1

to that described in the literature as having "good remissions." 2. We classify as "improved but not working" the group of patients who have shown an improvement which allowed them to live outside a hospital that is those who had become socially adjusted but who were not self supporting. 3. We consider as "improved but hospitalized" those patients who have shown physical and mental improvement who are apparently maintaining a stationary condition so far as the disease is concerned and who are able to adjust well and work in the environment of a hospital for patients with mental disease. 4. Patients who have shown little or no improvement are considered as "unimproved." Our fifth group consists of patients who have died of any cause.

In table 3 we present an analysis of the clinical status of the entire group in 1935. According to our analysis, eight patients out of the total number of thirty three were improved and working, and seven patients were living outside the hospitals although not self supporting, four patients, while remaining hospitalized, were known to be improved and were able to do work in an institution and had parole privileges, four patients were living but unimproved, ten patients had died.

In table 4 we present the observations on the cerebro spinal fluid. The observations for only thirty two patients are given because in one case it was not possible to make an examination of the spinal fluid subsequent to the treatment. We will not consider the serologic reaction of the blood, because experience has repeatedly indicated that there is no relation between the course of the disease and the reaction of the blood, either with or without adequate treatment. The spinal fluid examination gives more satisfactory evidence of the effect of treatment on the disease process. It has long been our opinion that a completely normal spinal fluid is a good indication of an arrest of the activity and progress of inflammation of the brain and represents an arrest of the disease. A completely normal spinal fluid was obtained in seven patients of the series, in four additional patients the condition of the spinal fluid was greatly improved, in five patients the spinal fluid showed moderate improvement and in sixteen it was considered as unimproved. By a "completely normal fluid" is meant a fluid showing a cell count under five, a negative reaction for globulin, a total protein content under 40 mg per hundred cubic centimeters, a negative reaction to the colloidal gold test and a negative Wassermann reaction with 1 cc of fluid. A "greatly improved" fluid was one in which the reactions were very weak, approaching but not quite negative, whereas a "moderately improved" fluid showed a reasonable reduction from the original strongly positive formula.

We have previously pointed out, as have many others, that there is no complete parallelism between the clinical results and the observations on the spinal fluid in cases of dementia paralytica under treatment. However, even in our reports of the results of treatment with trypanamide alone there appeared to be a fairly close correlation between the clinical and the serologic results. As regards our series of patients treated with diathermy, again some degree of correlation may be seen in table 5. This reveals the striking phenomenon that none of the fourteen patients who clinically were unimproved had a normal spinal fluid and in only two patients was the spinal fluid substantially improved. One can conclude that there is some correlation between the clinical status and the reaction of the spinal fluid, at least so far as the group that showed no improvement is concerned. With regard to the patients who were clinically improved, it will be seen that of the fifteen patients eight, or approximately one half of them, had completely normal or nearly normal spinal fluids.

It has been repeatedly emphasized that at least two factors play a role in the spinal fluid results following effective treatment, namely the time element and the number of subsequent injections of trypanamide. In any series of patients with dementia paralytica under treatment, more and more patients show normal cerebro spinal fluids as the years go by. It is also true that

4. Solomon H C and Epstein S H. Dementia Paralytica. Results of Treatment with Trypanamide. Arch Neurol & Psychiat 23 1716 (June) 1935.



the amount of tryparsamide given has an important influence on subsequent normality of the spinal fluid. We have stated in a previous communication<sup>5</sup> that with the persistent use of tryparsamide negative spinal fluid reactions are practically inevitable, irrespective of the

after diathermy fever. It should be noted that one year or more had elapsed before the spinal fluid became normal in all but one of the cases. With regard to that single patient, it must be pointed out that he had a spinal fluid which was only weakly positive before dia-

TABLE 2—Analysis of Cases

Case	Age	Sex	Duration of Symptoms Prior to Treatment	Type and Amount of Treatment Prior to Fever Therapy Doses	Amount of Fever Produced by Diathermy	Chemotherapy (Number of Injections) Following Fever Therapy	Subsequent Spinal Fluid Status and Period of Time Elapsed After Fever Therapy	Final Clinical Status	Period of Observation from Time of Fever Therapy	
1	56	♂	9 mos	4 malarial fevers	16 peaks of 104 F	9 tryparsamide 36 bismuth	Greatly improved	3½ yrs	Improved working	3½ yrs
2	35	♂	2 yrs	None	40 hours above 104 F	49 tryparsamide	Greatly improved	1 yr	Improved working	1½ yrs
3	55	♂	?	None	4 hours above 104 F	90 tryparsamide 30 bismuth	Normal	2½ yrs	Improved working	3 yrs
4	42	♂	1 yr	None	13 peaks of 104 F	53 tryparsamide	Moderately improved	1 yr	Improved working	1½ yrs
5	39	♂	11 mos	None	10 peaks of 104 F	40 tryparsamide	Unimproved	1 yr	Improved working	1½ yrs
6	32	♂	?	3 malarial fevers 6 typhoid vaccine fevers	4 hours above 104 F	30 tryparsamide	Normal	1½ yrs	Improved working	3½ yrs
7	36	♂	3 mos	8 tryparsamide 4 intraspinal 68 bismuth	20 peaks of 104 F	None	Normal	2 mos	Improved working	3½ yrs
8	46	♂	1½ yrs	None	16 peaks of 104 F	21 tryparsamide 14 bismuth	Unimproved	1 yr	Improved working	1 yr
9	37	♂	6 mos	None	33 peaks of 104 F	103 tryparsamide	Moderately improved	3½ yrs	Improved not working	3½ yrs
10	40	♂	4 mos	None	20 peaks of 104 F 27½ hours above 104 F 20 hours above 104 F	40 tryparsamide	Moderately improved	1½ yrs	Improved not working	2½ yrs
11	57	♂	?	None	10 peaks of 104 F	24 tryparsamide	Normal	10 mos	Improved not working stationary	1½ yrs
12	40	♂	3 yrs	40 tryparsamide 8 rat bite fevers	14 peaks of 104 F 1 hour above 104 F	24 arsphenamine 33 bismuth 14 mercury	Unimproved	3½ yrs	Improved not working	4 yrs
13	57	♂	2 yrs	7 tryparsamide	13 peaks of 104 F	None	Normal	1½ yrs	Improved not working	2½ yrs
14	48	♂	2 yrs	None	13 peaks of 104 F	69 tryparsamide	Unimproved	1½ yrs	Improved not working	2 yrs
15	51	♀	4 mos	None	14 peaks of 104 F	67 tryparsamide	Normal	4 yrs*	Improved not working	4 yrs
16	33	♂	6 mos	3 malaria (no takes)	5 hours above 104 F	73 tryparsamide	Unimproved	3 yrs	Improved hos	3 yrs
17†	17	♂	2 yrs	None	16 peaks of 104 F	73 tryparsamide 12 neoarsphenamine	Normal	2½ yrs	Improved hos	3 yrs
18	50	♂	6 mos	None	6½ hours above 104 F	5 tryparsamide 40 bismuth	Moderately improved	1½ yrs	Improved hos	1½ yrs
19	30	♂	1 yr	None	6½ hours above 104 F	54 tryparsamide	Unimproved	1½ yrs	Improved hos	1½ yrs
20†	13	♀	?	None	7 peaks of 104 F	0 tryparsamide	Unimproved	1 yr	Unimproved	2 yrs
21	40	♂	1½ yrs	None	17 peaks of 104 F	12 arsphenamine 10 bismuth 4 mercury	Unimproved	1 yr	Unimproved	1 yr
22	44	♀	?	None	5 peaks of 104 F	None	No test		Unimproved	1 yr
23	30	♂	6 mos	None	11 peaks of 104 F	20 tryparsamide	Unimproved	1 yr	Unimproved	1½ yrs
24	50	♂	?	None	3 hours above 104 F	9 bismuth	Moderately improved	6 mos	Dead	18 mos
25	34	♂	9 mos	None	13 peaks of 104 F 12 hours above 104 F	7 tryparsamide	Unimproved	4 mos	Dead	10 mos
26	34	♂	1 yr	20 bismuth	4 hours above 104 F	20 bismuth	Greatly improved	2 yrs	Dead	3 yrs
27	30	♂	2 mos	5 arsphenamine 7 intraspinal 16 mercury	11 peaks of 104 F	None	Unimproved	1½ yrs	Dead	1½ yrs
28	39	♀	1 yr	None	9 peaks of 104 F	22 bismuth	Unimproved	1 yr	Dead	1 yr
29	54	♂	?	None	10 peaks of 104 F	None	Unimproved	4 mos	Dead	4 mos
30	43	♂	?	None	10 peaks of 104 F	None	Unimproved	2 mos	Dead	2 mos
31	42	♂	1 yr	None	20 peaks of 104 F	26 tryparsamide 6 bismuth	Greatly improved	1 yr	Dead	1 yr
32	51	♂	2 yrs	None	13 peaks of 104 F	None	Unimproved	2 mos	Dead	2 mos
33	47	♀	2 yrs	None	4 peaks of 104 F	7 tryparsamide	Unimproved	3 mos	Dead	3 mos

\* No spinal fluid examination available during last two years.  
† Juvenile case.

clinical status. Table 6 shows the time element and the amount of treatment before and after diathermy fever in the seven cases of this series in which the cerebrospinal fluid became normal. From a study of so few cases it is not possible to draw any conclusions with regard to the effect of the amount of treatment

thermy treatment and considerable treatment had been given previously. Consequently, it may be assumed that the final serologic result in this case was attributable, at least in part, to the treatment other than diathermy fever.

The question of the duration and degree of fever necessary to produce successful therapeutic results is still undetermined. Various authors differ on this

<sup>5</sup> Solomon H. C. and Epstein S. H. Tryparsamide in the Treatment of Neurosyphilis. New York State J. Med. 31: 1012 (Aug. 1931).

point Among those who sponsor prolonged fevers (five hours) at high levels (106 F) are notably Neymann<sup>5</sup> and Simpson,<sup>6</sup> whereas Perkins<sup>7</sup> believes that short bouts of fever of around 104 F are just as effective in bringing about clinical remissions From

TABLE 3—Clinical Status in 1935 of Patients with Dementia Paralytica

Number of Patients Treated	Clinical Condition 1935				
	Improved Working	Improved Not Working	Improved Hospitalized	Unimproved	Dead
33	8	7	4	4	10

TABLE 4—Condition of Spinal Fluid of Patients with Dementia Paralytica in 1935

Total Number of Patients Treated	Spinal Fluid			
	Normal	Greatly Improved	Moderately Improved	Unimproved
32*	7	4	5	16

\* In one case the final result was not available

TABLE 5—Relationship Between Clinical and Serologic Results in 1935

Clinical Results	Number of Patients	Condition of Spinal Fluid				
		Normal	Greatly Improved	Moderately Improved	Unimproved	No Tests
Improved working	8	3	2	1	2	
Improved not working	7	3	0	2	2	
Improved hospitalized	4	1	0	1	2	
Unimproved	4	0	0	0	3	1
Dead	10	0	2	1	7	
Total*	33	7	4	5	16	1

TABLE 6—Time That Elapsed Before Cerebrospinal Fluid Became Normal

Case	Time	Treatment Before Diathermy, Doses	Treatment After Diathermy Doses
7	2 mos	8 tryparsamide 4 intraspinal 68 blsmuth	None
17	1 yr	None	51 tryparsamide
11	1 yr	None	24 tryparsamide
6	1½ yrs	6 typhoid vaccine fever 3 malarial fevers	30 tryparsamide
13	1¼ yrs	7 tryparsamide	None
3	2½ yrs	None	30 blsmuth 90 tryparsamide
10	4 yrs*	None	67 tryparsamide

\* No spinal fluid examination available prior to this time

our own experience it has not been possible to draw any hard and fast conclusions Table 7 gives an analysis of our cases from the standpoint of the amount of fever given and the clinical results obtained in the individual case It will be seen that there are no significant differences in the number of diathermy treatments among the various groups of clinical results It is further apparent that the few cases in which fevers were prolonged at high temperature levels were about equally divided between the improved and the unimproved groups However, it must be noted that those patients who did receive a large number of diathermy treatments at high and prolonged temperatures

were those who were not responding well to treatment and therefore represent relatively recalcitrant cases

It is quite possible that our results in the total group would have been much better had the treatment been more prolonged and at a higher temperature That is a point about which there is no unanimity of opinion, nor is there any adequate experimental control The same situation holds true for malarial paroxysms There are some statistical data, notably those of Bunker and Kirby,<sup>8</sup> which tend to show the optimum number of paroxysms and height of malarial fevers that produce the best therapeutic results On the contrary, there are some good results reported in the literature which occurred with a relatively small number of malarial paroxysms at low temperature levels All in all, the evidence seems hardly convincing and it still remains an open question as to what is the optimum condition for the most effective malarial and diathermy fever therapy

In the detailed analysis of cases outlined in table 2, there are a few points of interest that merit consideration Patient 19 had severe convulsive seizures dur

TABLE 7—Amount of Fever in Relation to Clinical Results

Case	Number of Fever Treatments	Peaks of Fever Range of 104 F	Duration of Fever Above 104 F	Comment
Improved	Working			
1	16	16		4 malarial paroxysms prior to diathermy
2	16		40 hours	
3	15		4 hours	Electric blanket
4	13	13		
5	10	10		
6	22		4 hours	8 malarial paroxysms and 6 typhoid vaccine fevers prior to diathermy
7	20	20		
8	16	16		
Improved	Not Working			
9	33	33		
10	44	23	27½ hours	Additional 20 hours were above 105 F
11	30	10		
12	15	14	1 hour	Treatment with rat bite fever 4 years prior to diathermy
14	13	13		
15	14	14		
Improved	Hospitalized			
16	15		5 hours	3 malarial inoculations without takes prior to diathermy
17	16	16		
18	9		8½ hours	
19	20		65 hours	
Unimproved				
20	7	7		
21	17	17		
22	6	5		Diathermy treatment stopped after five fevers because of reactions
23	11	11		
Dead				
24	15		3 hours	
25	18	13	12 hours	13 of the treatments with electric blanket remaining 5 with diathermy
26	15		4 hours	
27	11	11		
28	9	9		
29	15	15		
30	15	15		
31	20	20		
32	13	13		
33*	4	4		

ing his eighteenth and nineteenth diathermy treatments and was finally institutionalized, although he had no further seizures In this case it was deemed inadvisable to continue with diathermy fever therapy Patient 12

6 Simpson W M Artificial Fever Therapy Proc Staff Meet Mayo Clin 9 567 (Sept 19) 1934  
7 Perkins C T Diathermy Treatment of Dementia Paralytica Am Med 36 546 (Sept) 1931

8 Bunker H A Jr and Kirby G H The Height and Duration of Fever in Relation to the Clinical Outcome in the Treatment of General Paresis with Malaria M J & Rec (supp) 121 413 (April 1) 1925

was kept under observation for a total period of eight years, it is to be noted that this patient had had treatment with rat-bite fever four years prior to his diathermy treatment. In spite of this, his serologic reaction remained unimproved and his clinical condition was such that institutionalization was necessary during most of the time.

In our series of thirty-three patients treated with diathermy there occurred one definite relapse. This was in case 6, in which a normal spinal fluid had been obtained in one and one-half years after the fever therapy and in which the clinical condition was considered as arrested. Shortly after this study was made, which was nearly four years after diathermy fever therapy had been used in this case, the patient was brought back to the hospital and showed marked mental changes and a fairly strong spinal fluid. This is of extreme importance, because in our report<sup>1</sup> covering 173 patients treated with malaria we have not encountered a single relapse.

According to the figures in this relatively small series of patients, it would appear that 30.3 per cent of the entire group had died by the end of the four year period of observation and 27 per cent within two years after treatment. The only report in the literature covering a four year period is that of Freeman and his associates,<sup>2</sup> and in that series of fifty patients, 28 per cent had died. Most of the other reports show a much lower percentage of deaths, but it is to be noted that those patients were followed for relatively short periods of time. At any rate, the mass statistics of the entire series reported in the literature show a figure of 8 per cent for the death rate of patients with dementia paralytica treated with artificial hyperpyrexia.

The longevity of untreated and treated patients with dementia paralytica is an interesting subject for comparative study. The life expectancy for untreated patients is considered to be about two and one-half years in man. In marked contrast is the period of survival of the patients in our malaria series,<sup>1</sup> in which

TABLE 8—Analysis of Ten Cases in Which Death Occurred After Treatment with Diathermy

Case	Clinical Status Before Death	Condition of Spinal Fluid Before Death	Cause of Death	Postmortem Examination		Longevity After Fever Treatment
				Intracranial	Extracranial	
26	Unimproved	Greatly improved	Dementia paralytica	Subarachnoid edema	Multiple kidney abscesses	3 yrs
23	Unimproved	Unimproved	Dementia paralytica	Hemorrhage in frontal lobe and subdural hemorrhage (right) hemorrhage in 4th ventricle	None	1 yr
29	Unimproved	Unimproved	Dementia paralytica syphilitic heart disease	Leptomeningitis perivascular infiltrations	Chronic pleuritis thickened aortic valves aortitis	4 mos
31	Unimproved	Greatly improved	Dementia paralytica	Subarachnoid edema ependymal granulation perivascular infiltrations	Calcified milinary tuberculous netheromatous degeneration of aorta Coronary artery mitral and aortic valves	1 yr
32	Unimproved	Unimproved	Dementia paralytica cardiac failure	Chronic leptomeningitis focal cerebral atrophy	Chronic fibrous and acute vegetative endocarditis chronic fibrous myocarditis sclerosis of aorta and coronaries	2 mos
33	Unimproved	Unimproved	Dementia paralytica bronchopneumonia	Leptomeningitis cerebral atrophy	Bronchopneumonia	3 mos
24	Unimproved	Moderately improved	Dementia paralytica	No autopsy		8 mos
25	Unimproved	Unimproved	Dementia paralytica	No autopsy		10 mos
27	Unimproved	Unimproved	Diabetes mellitus chronic nephritis	No autopsy		1½ yrs
30	Unimproved	Unimproved	Dementia paralytica	No autopsy		2 mos

Table 8 shows an analysis of the deaths in this series. It will be seen that of the ten patients who died the duration of life was not greater than that of the average untreated patient with dementia paralytica. Of the ten deaths, all but one occurred within one and one-half years, the majority of the patients having died within a few months after the diathermy treatment. None of these patients showed any clinical improvement and only two of them showed any appreciable improvement with regard to the response of the spinal fluid before death. The latter point must be evaluated in the light of the fact that the patients died sooner than the time when spinal fluid changes usually occur following treatment. The causes of death as listed in the table indicate that the parietic disease was active in most of the cases with one possible exception. Patient 27 was known to have diabetes, underwent treatment and died one and one-half years later without having a postmortem examination. In the one patient 26 who lived for three years after treatment and finally succumbed to a renal infection postmortem examination of the brain showed evidences of dementia paralytica.

77.5 per cent of the total number of 173 patients had lived three or more years. In this series 14.8 per cent of the patients died within two years after treatment. Likewise, in our series of eighty-one patients treated with tryparsamide<sup>4</sup> the patients dying within two years represented only 13.5 per cent of the series. Table 9 shows the comparative figures regarding longevity. It will be seen that the figures are not exactly comparable, since the cases compiled from the literature were not followed for any great length of time, most of them having been followed for considerably less than two years. For this reason the percentage of patients dying after hyperpyrexia treatment in these series is given as 6.1. This figure, we believe, would be greatly increased if the cases had been under observation for two or more years.

There is a striking contrast between the mortality rates of patients treated with malaria and tryparsamide on the one hand and by diathermy on the other. In the mass statistics given by Moore,<sup>9</sup> based on an analysis of 5000 cases treated by malaria the deaths

<sup>9</sup> Moore, J. E. The Modern Treatment of Syphilis. Springfield, Ill. Charles C. Thomas, 1933.

during or shortly after treatment form 10 per cent of the cases. In our malaria series the death rate covering a nine year period is 22.5 per cent. Of the thirty-nine deaths recorded, twenty-six had occurred within two years following treatment. The death rate in our tryparsamide series<sup>4</sup> is 6.2 per cent, and it is to be noted that none of the fourteen deaths occurred in less than two years after treatment, and in only five cases did death appear to be due to unarrested dementia paralytica.

It is of some interest to compare the results in this series of patients who were treated by diathermy with

TABLE 9—Longevity Percentage of Patients Dying Within Two Years after Treatment

Malaria Series, 178 Cases	Tryparsamide Series 81 Cases	Diathermy Series <sup>4</sup> 33 Cases	Hyperpyrexia Series 489 Cases*
14.8%	13.5%	27%	76.1%

\* Hyperpyrexia series compiled from literature followed less than two years.<sup>5</sup> Freeman's series followed four years had 28 per cent mortality.

those in the literature who received other forms of therapy. The clinical results are tabulated (table 10) and show clearly that malarial treatment gives the highest percentage of improvement, with tryparsamide treatment a close second, whereas treatment with artificial hyperpyrexia gives a low percentage of improved cases. Table 11 gives the comparison of serologic results among our three series of patients treated respectively by malaria, tryparsamide and diathermy. It will be seen that 21.9 per cent of the total number of cases treated by us with diathermy showed a normal spinal fluid, which is a substantial figure although distinctly less than our malaria and tryparsamide series. The literature on diathermy treatment has been combed with a view to computing the percentage of favorable serologic results but it is to be regretted that, of the total number of 648 cases reported in the literature, serologic data are available in only 237 cases. Among these cases no detailed analyses of the spinal fluid examinations are to be found, and we note that the

TABLE 10—Comparison of Clinical Results

	Malaria Series 178 Cases	Malaria Series 5 000 Cases*	Hyperpyrexia Series 648 Cases†	Diathermy Series <sup>4</sup> 33 Cases	Tryparsamide Series 81 Cases
Arrested	48.5%	45.0%	27.1%	24.2%	42.0%
Partially improved	15.2	25.0	40.1	33.3	29.0
Unimproved	13.8	20.0	24.8	12.2	22.2
Dead	22.0	10.0	8.0	30.3	6.2

\* J. E. Moore's mass statistics compiled from the literature.  
† Hyperpyrexia series compiled from literature.

spinal fluid following treatment was improved in sixty-four cases, and in an additional eight cases, reported by Simpson,<sup>6</sup> the spinal fluid Wassermann reaction was found to be negative. Therefore we have to compute percentages on the basis of our own small series of thirty-three cases treated with diathermy.

The foregoing account of therapeutic results of diathermy fever therapy includes follow-up treatment with tryparsamide. These results are comparable to our malaria series of patients, to whom other forms of treatment in addition to fever were also given. The importance of our results herein reported lies in the contrast between the two febrile methods of treatment. In our hands, and in a review of the literature as well,

diathermy treatment did not give as good results as malaria. On the practical side there is considerable hazard in the diathermy method, the patients are extremely uncomfortable and require constant supervision during the treatment, and the expense is much greater than with the malaria method. The only advantage of diathermy treatment is that it can be used in some cases in which malaria cannot be given, and in other cases it can be used in addition to malaria. We are not convinced that diathermy is an advantageous substitute for malaria, either from the review of the literature or from our own experience.

#### SUMMARY

1 A review of the literature of the results of treatment of dementia paralytica with fever produced by diathermy and related mechanical modes of hyperpyrexia indicates that, out of a total of 648 cases reported between 1929 and 1935, good remissions were reported in 27 per cent.

2 In our series of thirty-three patients who were treated by diathermy between February 1931 and February 1934, according to our analysis, made in February 1935, eight patients were improved and working, and an additional seven patients were improved but not self supporting. Four patients, while remaining hospitalized, were known to be improved. Four patients were living but unimproved, and ten patients had died.

TABLE 11—Comparison of Serologic Results

	Malaria Series 178 Cases	Tryparsamide Series <sup>4</sup> 81 Cases	Diathermy Series <sup>4</sup> 33 Cases
Normal	36.7%	37.5%	21.9%
Greatly improved	20.7	16.3	12.0
Moderately improved	18.3	10.0	15.6
Unimproved	24.3	36.2	50.0

3 In one case out of our total series there was a definite clinical and serologic relapse four years after the administration of diathermy fever therapy.

4 There appeared to be a correlation between the clinical status and the reaction of the spinal fluid in this series. Of the fifteen patients who were clinically improved, eight, or approximately one half of them, had completely normal or nearly normal spinal fluids.

5 With regard to the duration and degree of fever productive of the best therapeutic results, it is not possible from our experience to draw any hard and fast conclusions. But it is quite possible that our results in the total group of cases would have been much better if the diathermy treatment had been more prolonged and at a higher temperature level.

6 The longevity figures based on the percentage of patients who died within two years after treatment indicate that 27 per cent of the diathermy series represent deaths which occurred within two years after treatment. This is contrasted with the figure 14.8 per cent for our malaria series and 13.5 per cent for our tryparsamide series previously reported.

7 A comparative study of the clinical results among patients treated with malaria, artificial hyperpyrexia including diathermy, and tryparsamide indicates that the best remissions are obtained in a little over 45 per cent of the malarial treated cases and 42 per cent of the cases treated by tryparsamide, contrasted with 27 per cent of the cases treated by artificial hyperpyrexia.

8 A comparative study of the serologic results in our series of cases indicates that about 22 per cent of our diathermy series showed a normal spinal fluid following treatment, in contrast to 37 per cent obtained in our malarial and tryparsamide treated cases

#### CONCLUSION

In our hands, fever produced by diathermy has some value in the treatment of dementia paralytica but it is not so good as malaria therapy. Likewise, in a review of the literature it fails to prove to be a valuable substitute for malaria, although from our studies it appears to have distinct therapeutic value. Moreover, it would seem that treatment with tryparsamide is capable of producing beneficial results similar to those produced by malaria therapy.

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### RAGWEED (CONTACT) DERMATITIS

OBSERVATIONS IN FORTY-EIGHT CASES AND REPORT OF UNSUCCESSFUL ATTEMPTS AT DESENSITIZATION BY INJECTION OF SPECIFIC OILS

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In a previous paper we<sup>1</sup> reported our experience with eighteen patients who presented a recurrent, eczematous seasonal dermatitis due to sensitivity to oil of ragweed. During the seasons of 1934 and 1935 we observed thirty similar cases, and a summary of our observations for the entire group of forty-eight cases forms the basis of the present report. In addition we shall describe the results of attempts at desensitization of twenty-four of these individuals who were given injections preseasonally of the specific oils to which they were found to be sensitive.

#### SYMPTOMATOLOGY

The most typical feature of ragweed dermatitis is its seasonal incidence, coinciding as it does with the season of pollination of the weeds during the summer and autumn months and clearing spontaneously with the first frost, at least in the earlier cases. The eruption, which is at first limited to the exposed skin of the face, neck and arms, is characterized by diffuse erythema and superficial desquamation and by a minimum of vesiculation, it is extremely pruritic. On continued exposure, the eczematous manifestations become more chronic, lichenification and fissuring occur and occasionally, involvement of the entire surface of the body, with resulting total disability.

Men are chiefly affected, usually farmers or those who frequent rural districts in work or sport. In the present series there were forty-four men and only four women. The condition affects adults exclusively and seasonal recurrences are the rule. In the forty-eight cases herein described the average age at which symptoms began was 39 years and the average duration of recurrences covered twelve seasons. There were three men in the group who had each been troubled each season for more than twenty years.

#### PATCH TESTS

Patients were tested by patch applications of a wide range of common cutaneous irritants, including weeds, chemicals and cosmetics. The unbroken skin of the upper portion of the back was the usual site chosen. In the case of weeds, pyrethrum or orris root the unwashed powder was used in the case of chemicals, a standard solution not irritating to the normal skin, was used. Test materials were allowed to remain in place from twenty-four to forty-eight hours, and readings were made at the site of testing at intervals ranging from one to seven days after removal of the patch. Those reactions showing edema or vesiculation or both were graded positive, very weak reactions with no more than transient changes were not classified as positive reactions.

Although our chief interest lay in the study of reactivity to the ragweeds, most patients were tested to a variety of common cutaneous irritants in order to appraise the trend and range of sensitivity of the group of patients as a whole (table 1). There were 131 positive patch reactions out of the total number of 597 tests that were applied, and the greater share of positive reactions were to the ragweeds. Of thirty-five tests made to pyrethrum, six were positive, of a similar number to turpentine the same number were positive, although not necessarily in identical patients.

In most instances sensitivity was multivalent; however, there were nine instances in which sensitivity was limited to short ragweed alone and in one instance to burweed marsh elder alone. There was sensitivity to

TABLE 1—Results of 597 Patch Tests Covering a Wide Variety of Substances in Forty-Eight Cases of Ragweed Dermatitis

Substances	Patch Tests		
	Positive	Negative	Total
Ragweed family			
1 Short ragweed	37	0	40
2 Giant ragweed	0	3	38
3 Western ragweed	21	1	4
4 Burweed marsh elder	32	11	41
5 Cocklebur	6	2	2
Sage	1	22	23
Timothy	2	10	12
Pyrethrum	6	29	35
Turpentine	6	29	35
Orris root	0	20	20
Inorganic salts			
1 Mercury bichloride	2	18	20
2 Potassium iodide	2	17	19
3 Potassium arsenite	2	18	20
4 Potassium bromide	2	17	19
5 Nickel nitrate	0	14	14
Resorcinol	0	15	15
Quinine	1	17	18
Paraphenylenediamine	1	17	18
Hydroquinone	1	13	14
Phenolphthalein	0	1	1
Miscellaneous	4	109	113
Totals	131	466	597

One each of red root, brome grass, dandelion and licorice resorcinol.  
† Weed, chemicals, cosmetics and so on.

short ragweed and burweed marsh elder in the same patient on four occasions, to short ragweed and western ragweed once and to burweed and western ragweed once. In these cases of univalent or bivalent sensitivity an average of fifteen patch tests were performed in each case.

A comparative analysis of tests made to the various species of ragweed (short, giant and western ragweed, and burweed marsh elder and cocklebur) is of special interest. Records of tests on thirty-eight patients to these five varieties of ragweed were sufficiently complete to permit of tabulation (table 2). Short ragweed

Read before the Chicago Society of Allergy, Feb. 17, 1936.  
From the Section on Dermatology and Syphilology, the Mayo Clinic.  
1 Brunsting, L. A., and Williams, D. H., Ragweed Dermatitis. A Report Based on Eighteen Cases. J. A. M. A. 103: 1283-1290 (Oct. 27) 1934.

gave a positive reaction in thirty-five instances and burweed marsh elder in twenty-five instances in the thirty-eight tests that were made. In no instance were tests to these two materials negative for the same individual.

TABLE 2—Results of Patch Tests on Thirty-Eight Patients Who Were Tested to Each of Five Varieties of Ragweed  
(Total 176 tests, fourteen not done)

Substance	Positive	Negative	Not Done
Ragweed short*	35	0	0
Ragweed giant	3	34	1
Ragweed western	20	1	7
Burweed marsh elder	25	1	0
Cocklebur	6	24	8
Total	89	60	14

\* Ambrosia elatior synonyms short low dwarf common ragweed

TABLE 3—Comparison of Reactions in Thirty-Eight Cases in Which Patients Were Tested to Both Short and Giant Ragweed

Ragweed Short	Ragweed Giant		Total
	Positive	Negative	
Positive	3	32	35
Negative	0	—	3
Total	3	32	35

On the other hand, a summary of the patch reactions to short ragweed and giant ragweed in the same group of patients presents a sharp contrast (table 3). There was a positive reaction to giant ragweed in only three instances among the thirty-eight patients tested. Presuming that the irritating fraction of the plant or pollen is contained in the oil, we might question whether there was sufficient oil in the pollen of the giant ragweed used in our tests to produce a positive reaction. There was no lack of oil. In fact, the unwashed pollen of giant ragweed invariably yields more oil proportionately than the pollen of either burweed marsh elder or short ragweed.<sup>2</sup> From our observations we must assume that the oil of giant ragweed lacks the irritating quality of the oil of short ragweed. Perhaps a further study of the unsaponifiable, as compared to the saponifiable fractions of the two oils, following the suggestion of Engman and others,<sup>3</sup> will throw more light on the subject. In any event the discrepancy exists and is of more than passing interest in view of the evidence which tends to show that the two varieties of ragweed from the standpoint of the active protein constituents are otherwise so nearly identical.<sup>4</sup>

#### ALLERGIC BACKGROUND

In our previous report we<sup>1</sup> stated that we found there was no more than a casual relationship between contact sensitivity and the allergic state. In the present series of forty-eight cases of ragweed dermatitis there were ten patients who gave a history of allergic associations in the form of infantile eczema, hay fever, asthma or the like in themselves or among members of their families. In these ten cases we found positive reactions of an urticarial type to the intracutaneous injection of assorted proteins of foods or inhalants.

Six of these ten reactors responded with an urticarial wheal to the intracutaneous injection of protein of short ragweed. A special study was made in this regard of twenty-eight patients who gave a positive reaction to the patch test to short ragweed and who were tested by the intracutaneous injection of the protein fraction of the same plant; in this group there were only the six positive responses which were just mentioned.

#### ATTEMPTS AT TREATMENT BY DESENSITIZATION

Brown, Milford and Coca,<sup>5</sup> after pointing out that the contact irritant of ragweed was an oil, recommended that such specific oil be given by injection to patients with ragweed dermatitis for purposes of desensitization. During the seasons of 1933, 1934 and 1935 we selected certain patients with ragweed dermatitis for trial with this type of treatment.<sup>6</sup>

In most instances patients were given the oil of mixed ragweed, that is, equal parts of short and giant ragweed by intramuscular injection in doses ranging from 0.1 to 0.5 cc in varying intervals of time and for varying numbers of treatments. For certain patients who presented patch reactions of the multivalent type an attempt was made to include oils comparable to all the types of irritants that gave positive reactions, but this was not always feasible. A few individuals with a history of recurring dermatitis of this type came to us with the diagnosis having been established elsewhere and with a history of having received previous injection.

TABLE 4—Summary of Results of Oil Treatment of Ragweed Dermatitis (282 Oil Treatments, Twenty-Four Patients)

Case	Oil Treatments Number Variety of Oil Used			Year	Results Judged by Patient
	Ragweed (Mixed Short Giant)	Burweed Marsh Elder	Miscellaneous		
1	87			32-34	Relap
2	7			35	Relap
3	1		1*	34	Relap
4	1			34	Relap
10	1	1	3†	35	Relap
11	1	3		35	Relap
12	1			33	Relap
13				32-34	Relap
14	21			35	Relap
15	8			34	Relap
16	6			34	Relap
21	36			35	Relap
22	4		41	37-34	Relap
23	20		68	34	Relap
24	6			34	Relap
25	6			34	Relap
26	4	2		33-34	Relap
27	3			34	Relap
28	4			34	Relap
29	3			34	Relap
30	6			34	Relap
31	4	3		34	Relap
32	12			34	Relap
33	9			34	Relap
34	12			34	Relap
35	4	2		34	Relap
Total	222	16	14		

\* Cocklebur  
† Western ragweed

‡ Pyrethrum  
§ Barley

tions of specific oil intramuscularly. When it could be arranged, we endeavored to give the oil treatment periodically, beginning in the spring and carrying through the early summer months in an attempt to avoid the expected seasonal recurrence in the fall.

The results for those patients who received oil treatment of this type at any time before 1935, and including the spring season of 1935, were judged by the

2 Moore Marjorie and Durham O C. Personal communication to the authors.

3 Engman M F Jr, Moore Morris and Kile R L. Contact Dermatitis. South M J 28: 442-444 (May) 1935.

4 Cooke R A, Stull Arthur, Hebbald Selman and Barnard J H. Clinical and Serologic Study of the Relationship of Giant (Ambrosia trifida) and Low (Ambrosia Artemisiaefolia) Ragweed Pollen. J Allergy 6: 311-34 (May) 1935.

5 Brown Aaron, Milford E I and Coca A F. Studies in Contact Dermatitis. I. The Nature and Etiology of Pollen Dermatitis. J Allergy 2: 301-309 (July) 1931.

6 The oil used in all cases was the standard material prepared by Lederle Laboratories, Inc. in 1 per cent dilution in almond oil.



degree of relief obtained during the ragweed season in the fall of 1935. A summary of the type of treatment given and of the results in twenty-four cases is presented in table 4. In only two cases was there no relapse (41 and 51). Both of these patients were men who were able to carry on their usual work in the rural districts during the fall of 1935 without recurrence of dermatitis, whereas for several seasons previously they had had annual attacks of dermatitis. During 1934 one of them had been given six injections of the oil of mixed ragweed, and the other, four injections of oil of mixed ragweed and two of oil of burweed marsh elder. In three other cases (25, 40 and 42) treatments were of doubtful benefit, and in these three cases the oil treatments numbered six, three and seven, respectively. In every one of the remaining nineteen cases there was recurrence of dermatitis during the season of 1935. Unfortunately, in the latter group there were one or two patients who received no more than two treatments, on the other hand there were five who obtained no measure of relief who had received eighty-five, twenty-one, thirty-six, twenty and twelve injections, respectively. Six patients, each of whom had received oil treatments, were examined on subsequent occasions and patch tests to short ragweed were made, in no instance was a negative reaction obtained.

In an analysis of the results of treatment it does not appear that there is any correlation between the patients who received benefit and the univalence or multivalence of the respective positive patch reactions in these cases. Several of the patients who obtained no relief were treated through more than one year, in two cases for three years, and preseasonally in each instance. Others<sup>7</sup> have mentioned that there was relief from symptoms of pruritus within a period of a few hours following injection of the oil of the specific irritant. We noticed such a favorable influence on symptoms in only one instance. On the other hand we have records of thirteen patients who were unfavorably influenced by the injections of the specific oil in doses as low as 0.1 cc intramuscularly, or even by the application of the irritant to the skin by patch test. In three instances in which there was a flare of this type the eruption became more generalized, and in one case it became universal.

The discouraging results of attempts to confer immunity in this type of contact dermatitis is in agreement with the lack of success which we have had in other types of contact sensitivity, namely those in which there is reaction to oils of ivy, chrysanthemum and pyrethrum. This is in harmony with the observations of investigators over the country who have communicated to us their personal experience. Scattered instances have been reported of occasional patients with contact dermatitis who have received benefit from this type of desensitization by oil treatment, but they are the exception rather than the rule. It is obvious that further study is needed with regard to the particular fraction of the oil that contains the specific irritant capable of producing sensitivity. Furthermore, now that it has been shown that this type of contact sensitivity to specific irritants can be induced experimentally in animals, there is need for controlled attempts at desensitization before the method, at least in its present stage, can be generally recommended for use in man.

## SUMMARY

Forty-eight patients had the typical syndrome of recurrent seasonal dermatitis in the fall due to sensitivity to oil of ragweed, and the reactions of these patients to nearly 600 patch tests to common cutaneous irritants were studied.

Outstanding positive reactions were obtained by the patch tests to short ragweed, burweed marsh elder and western ragweed. Positive reactions to patch tests of giant ragweed were strikingly insignificant.

Twenty-four patients who were selected for attempts at desensitization were given a total of 282 injections intramuscularly, of specific plant oils, 252 of which were of oil of mixed (short and giant) ragweed, during the two or three years preceding 1935 and including the spring of 1935. In nineteen of these twenty-four cases in which oil treatments in varying amounts had been given there was no relief of symptoms, as shown by relapse during the expected season of dermatitis in the fall of 1935.

## CAUDA EQUINA SYNDROME FOLLOWING SUBARACHNOID ALCOHOL INJECTION

## REPORT OF TWO CASES

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In describing his technic of the subarachnoid injection of alcohol for intractable pain, Dogliotti<sup>1</sup> warns against possible sequelae, particularly of injury to the cauda equina. Transient bladder and bowel embarrassment following lumbar sac injection is mentioned by those who are familiar with this procedure. A recent report by Sloane<sup>2</sup> described the permanent relief of pain, but sphincteric disturbances which had developed had been persisting for eight months when the report was made.

In the two cases described in this paper, very transient relief was afforded from the pain for which Dogliotti's treatment was used. On the other hand, the bladder disturbances have persisted for over a year in one case and for the entire period of observation (eight months) in the second case. Furthermore, it is of significance that although the lesion produced by the alcohol was unilateral, there nevertheless resulted a profound urinary incontinence.

## REPORT OF CASES

CASE 1—A tailor, aged 50 admitted to the Neurological Service of the Jewish Hospital, Oct. 23, 1934 complained of constant pain in the right lower extremity of two years' duration. On physical examination he was found to be suffering from a far advanced hypertrophic spondylitis of the fifth, sixth, seventh, eleventh and twelfth dorsal and the third and fourth lumbar spinous processes, and a sacro-iliac arthritis on the right. As a result he exhibited all evidences of an involvement of the right sciatic nerve, with a mild foot drop, loss of the achilles tendon reflex and vaguely defined sensory disturbances of the foot. Spinal puncture gave normal results. The left lower extremity was uninvolved.

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1. Dogliotti, A. M. *Antalgic Therapeutic Methods*. Accessible to All. New York & Aracaj, 14-150 (July-Aug.) 1935.  
2. Sloane, Paul. Syndrome Referable to the Cauda Equina Following the Intraspinal Injection of Alcohol for the Relief from Pain. *Arch. Neurol. & Psychiat.* 34: 1120 (Nov.) 1935.

7. Frank, L. J. Ragweed Dermatitis. *J. Iowa M. Soc.* 25: 283-285 (June) 1935. Rackemann, F. M. Allergy. A Review of the Literature of 1935. *Arch. Int. Med.* 57: 18-212 (Jan.) 1936.

November 7, with the patient lying on his left side and the right hip sharply elevated, 1 cc of absolute alcohol was injected into the subarachnoid space between the third and fourth lumbar spines. The patient was kept in this position for about thirty minutes, and on his left side for several hours. There was no immediate reaction. That night the patient was able to sleep comfortably for the first time in two years. The following morning he complained of numbness in the right lower buttock. He was unable to void for forty-eight hours. Then a urinary anesthesia and incontinence developed. The bladder was distended and palpable through the abdominal wall. Constipation was also present. November 9 he exhibited a loss of pain and touch sensation in the distribution of the second, third, fourth and fifth sacral segments. There was anesthesia of the right half of the penis and scrotum. Sciatic pain had disappeared entirely and the patient was quite happy, despite the development of cystitis and an overflow bladder.

November 14, analgesia persisted in the four lower sacral segments on the right, but the sense of touch was not so widely affected. The right half of the scrotum and penis was anesthetic to pin prick. The anal sphincter was anesthetic to pin prick only on the right. Pain was perceptible on the left. The anal sphincter was relaxed and not under voluntary control. The palpating finger within the canal was not felt. There was a partial loss of voluntary urinary control although the bladder emptied intermittently instead of dribbling constantly as it had done at first. Following the voluntary voiding of 150 cc of urine, 650 cc of residual urine was removed by the catheter. November 18 the patient seemed to recognize the urge to void and would call for the urinal. There was no incontinence, but during micturition he was totally unaware of the passage of urine. Sensation of touch was slowly returning, but pain sense was still absent in the primarily involved areas. Dissociation of pain and touch in the right half of the penis and scrotum seemed to have occurred, pain being absent.

November 22 the patient was discharged from the hospital, completely freed from his sciatic pain but with a persisting cauda equina syndrome. The sciatic pain recurred November 28 and has continued unabated to the date of the last examination Dec 19 1935. At this time there was no subjective sensation of a full bladder, urination or desire to defecate, he had taught himself to go to the toilet at stipulated times during the day.

CASE 2—A woman, aged 47, white, a housewife, admitted to the Medical Service of the Jewish Hospital, Aug 5, 1934, complained of pain in both legs of sixteen days' duration. She was known to have diabetes and had been in the hospital three years previously with circulatory disturbances of both legs, the symptoms lasting for seven months. In March 1934 there had been indeterminate renal symptoms for eleven weeks. Two weeks prior to admission the patient suffered severe pains in both legs, which became discolored. Vomiting occurred.

Physically the patient was somewhat undernourished. She was confused, the memory was faulty and there was a marked emotional instability colored by suicidal ideas. Because of her irritability she was difficult to manage and had been subjected to large doses of morphine, to which she had become addicted. She suffered from a moderately enlarged heart, which was fibrillating. Systolic and diastolic murmurs were heard at the apex. The heart tones were of poor quality. The blood pressure was 170 systolic 90 diastolic. There was a moderate degree of arteriosclerosis of the upper extremities. On admission she was unable to move the right leg and within twenty-four hours she lost motor power in the left leg. Over the dorsal surface of the right foot near the metatarsophalangeal joints there was a reddish purple discoloration. The toes of both feet were cyanotic more so on the right. The legs were tender to palpation and manipulation. On the small left toe was a green crusted lesion. The dorsalis pedis and the posterior tibial pulsations were not obtained on either foot. The popliteal pulse could be felt on the left, but its presence was doubtful on the right. Both femoral arteries had normal pulsations. Laboratory observations included a diabetic sugar tolerance curve and a slight retention of nonprotein nitrogen (36.6 mg per hundred cubic centimeters). The electrocardiographic diagnosis was left ventricular preponderance and auricular fibrillation. Roentgen examination demonstrated the presence of calcification of the common iliac arteries.

The patient rejected the recommendations of periaarterial sympathectomy and of chordotomy. She submitted to injections

of absolute alcohol into the subarachnoid space and on Aug 21, 1 cc was injected in the second lumbar interspace. This was entirely without relief or complication. November 27, at 10 a. m., the injection of 1 cc of absolute alcohol was repeated in the same space. The following morning there was no subjective improvement. Sensory examination could not be done satisfactorily, but apparently no sensory changes had taken place. At 5 p. m., November 28, the bladder was dribbling, 1,200 cc of residual urine was removed by catheter. No new sensory changes could be detected in the legs. On the morning of November 29 the patient reported that she had less pain. The night's sleep had been without discomfort. There was a small area of anesthesia on the anterior aspect of the right thigh and around the anus. There were hypesthesia and analgesia over the right thigh, anteriorly and posteriorly. The left thigh was analgesic to pin prick front and back, but touch was intact. Both legs and feet were hyperesthetic, all touch sensation was interpreted as pain. All symptoms of pain returned on December 3. On this day all stimulation of the lower extremities was painful. Incontinence of the bladder continued. Eventually psychotic episodes appeared necessitating the transfer of the patient to a sanatorium. Before her removal from the hospital, neurologic examination, April 13 1935, demonstrated the presence of anesthesia of the fourth and fifth sacral segments on the right, with a slight extension of the anesthesia to the left perianal region. The remainder of the lower extremities was hyperesthetic to touch. Incontinence of the bladder persisted.

#### COMMENT

The action of alcohol on nerve roots is to fix the tissue, thereby blocking all impulses. If it were possible to destroy in a selective way the fibers that transmit pain, leaving all other fibers intact, an ideal therapeutic measure would be available for the relief of intractable pain. Dogliotti<sup>3</sup> and Stern<sup>4</sup> state that the injection of alcohol intraspinaly offers this opportunity. They maintain that the unmyelinated pain fibers of the posterior roots of the spinal nerves are blocked, while the myelin sheaths of the fibers of touch and position sense protect their axis cylinders from damage. Manipulations of the body during the injection permit the anterior roots to escape, while selection of the spinous interspace for injection offers a reasonable degree of certainty in limiting the involved nerves to the desired levels.

The method is based on the principle that absolute alcohol, being lighter in specific gravity than cerebrospinal fluid, will rise to a superior stratum before it diffuses and mixes with the cerebrospinal fluid. This can readily be demonstrated in vitro. The side that is uppermost is the one affected by the alcohol, permitting the production of unilateral block, and by elevating the desired region of the spine sharply it is possible to limit the number of involved nerves to some reasonable extent. However, it is probable that the alcohol frequently diffuses over a wider area and involves more nerve roots than is desired.

Dogliotti cautions against possible cauda equina complications in lumbosacral injections because of the close grouping of many nerve roots in a small confined space. Less selectivity is possible here than in the dorsal region, and for this reason he recommends the use of not more than 0.6 cc of absolute alcohol in lumbar sac injections. By excessive tilting of the pelvis it is possible to affect the lowest sacral roots on both sides, which may also occur if too low an interspace is selected for the injection, with a resulting sphincteric disturbance.

<sup>3</sup> Dogliotti, A. M. Recent Methods of Analgesia and Anesthesia. *M. Rec.* 140: 347 (Oct 3) 1934.

<sup>4</sup> Stern, E. L. Relief of Intractable Pain with Intraspinal Alcohol. *Am. J. Surg.* 25: 217 (Aug.) 1934. The Intraspinal (Subarachnoid) Injection of Alcohol for Thrombo Angustis Obliterans. *M. Rec.* 141: 244 (March 6) 1935.

However, Dogliotti observed in no instance of his series of cases sphincteric disturbances of more than twenty days' duration.

In both of our cases 1 cc of alcohol was injected. Saltzstein<sup>5</sup> used this amount without complications. Analysis of the records of five cases from the medical wards of the Barnes Hospital discloses that 1 cc of absolute alcohol was injected into the lumbar sac without the development of any sphincteric disturbances. However, it is not difficult to understand how involvement of the lower sacral nerve roots occurred in our cases, especially in case 1, in which the site of injection was rather low. In both cases there was a persistent unilateral disturbance of both pain and touch sensation in the lower three or four sacral segments, although the zones of analgesia were wider than the zones of hypesthesia or anesthesia. Although this does not contradict absolutely the contention of the greater susceptibility of the pain fibers to alcohol fixation, nevertheless it is a warning that the myelinated fibers are not invulnerable to this technic. The use of the larger dose of alcohol may be responsible for these results.

We were impressed by the impermanence of the relief from pain and the persistence of sphincteric disturbances in both our cases. The sciatic pain syndrome in case 1 was relieved for five weeks, but its recurrence left the patient as disabled as ever. As our injections were made relatively low, the upper lumbar nerve roots must have been hardly involved at all, while the lower lumbar roots were temporarily blocked. The sacral roots, however, may be presumed to have been severely injured, requiring long periods for regeneration, if any is to occur. In case 2 the pain was due to a vascular disease of the legs, the pain mechanisms of which are vaguely understood. Perhaps the pathways of pain in this case were scarcely touched. It is well to recall that Dogliotti felt that pain from vascular disease of the extremities did not respond to this method of treatment. Stern, however, has reported favorable results, but in each case he made the injection between the twelfth dorsal and the first lumbar vertebra.

Vesical disturbances are well known symptoms of cauda equina lesions. According to Allen,<sup>6</sup> 50 per cent of all caudal tumors not involving the conus medullaris are accompanied by both bladder and bowel disturbances at some time, while only 34 per cent of his series of cases escaped sphincteric disturbances. Bladder symptoms in hemicaudal lesions may be transient, but with the early appearance and persistence of incontinence one is to suspect a conus lesion.

Curling,<sup>7</sup> Shattock,<sup>8</sup> Smith and Engel,<sup>9</sup> Barrington<sup>10</sup> and Creevy<sup>11</sup> emphasized the importance of intact bladder sensation in the maintenance of normal function. Since the sensory roots of the first to the fourth sacral nerves carry the afferent fibers from the bladder, the hemicaudal nature of the lesions in our cases, since they affected the bladder, is not contradicted by the apparent bilateral fifth sacral root involvement. Spiller<sup>12</sup> described the occurrence of permanent sphinc-

teric disturbances in a case of hemicaudal injury. The anatomic conditions in his case closely approximate those in our own. Whether the tip of the conus medullaris was injured by the alcohol we are not prepared to say.

#### CONCLUSIONS

1 Bowel and bladder disturbances followed lumbosacral subarachnoid injections for the relief of intractable pain in two cases.

2 In both cases, loss of pain and touch sensation in the lower sacral segments occurred unilaterally, with the exception of the last segment, which was bilaterally involved.

3 Only temporary relief from pain followed the treatment.

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## THE TREND OF DIABETES MELLITUS IN NEW YORK CITY

STATISTICS FROM BELLEVUE HOSPITAL  
1911 TO 1935

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A survey of the diabetes records from Jan 1, 1911, to Jan 1, 1935 was made at Bellevue Hospital, the largest general charity hospital in the city of New York. All cases in which the diagnosis of diabetes mellitus could be substantiated by the history or laboratory observations were included in the study, although this diagnosis may have been of secondary importance. The twenty-four year period was divided into four smaller periods of six years each: 1911-1916, 1917-1922, 1923-1928 and 1929-1934. Since the routine use of insulin was begun in Bellevue Hospital in February 1923, a comparison may be made of the incidence of diabetes and the effectiveness of the therapy employed during two preinsulin periods, and an early and a late Banting—that is, insulin—period.

#### FREQUENCY OF DIABETES

Table 1 shows for each of the four six-year periods the total number of general admissions and of diabetes admissions, the number of diabetic patients per thousand general admissions, the number of diabetic patients admitted for the first time, and the number of treated diabetic patients. The general hospital admissions increased 44.6 per cent between 1911-1916 and 1929-1934, whereas the diabetes admissions increased 395 per cent. This disproportionate rise of diabetes cases is also shown by the increase of the frequency of the disease from 2.8 per thousand general admissions in 1911-1916 to 9.7 in 1929-1934. The 246.4 per cent rise in the frequency of the disease is probably due to the discovery of new cases as there is an associated increase of 309.2 per cent in the first admissions for diabetes.

From the Fourth Medical Division, Bellevue Hospital, Dr. Charles H. Nammal, director.

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Appreciation is hereby expressed to the directors of the various divisions of Bellevue Hospital for placing their records at my disposal and to Dr. H. O. McEntal and C. F. Bolduan and to Mr. G. J. Drolet of the New York Tuberculosis Association for their invaluable advice.

<sup>5</sup> Saltzstein H. C. Intraspinal (Subarachnoid) Injection of Absolute Alcohol. *N. Y. M. J.* 103: 242 (July 28) 1934.

<sup>6</sup> Allen J. M. Tumors Involving the Cauda Equina. *J. Neurol. & Psychopath.* 11: 111 (Oct.) 1930.

<sup>7</sup> Curling T. B. Affections of the Bladder in Paraplegia. London. *M. Gaz.* 11: 76 (1833).

<sup>8</sup> Shattock S. C. Is There an Idiopathic Dilatation of the Urinary Bladder. *Proc. Roy. Soc. Med. (Sect. Path.)* 2: 88, 1908.

<sup>9</sup> Smith C. K. and Engel I. P. Neurogenic Vesical Dysfunction in Children. *J. Urol.* 28: 675 (Dec.) 1922.

<sup>10</sup> Barrington J. J. quoted by Creevy.<sup>11</sup>

<sup>11</sup> Creevy C. D. Neurogenic Vesical Dysfunction. *Arch. Neurol. & Psychiat.* 34: 277 (Oct.) 1935.

<sup>12</sup> Spiller W. G. Congenital and Acquired Lncure is from Spinal Lesion. *Am. J. M. Sc.* 151: 469 (April) 1916.

Lemann,<sup>1</sup> reporting from the New Orleans Charity Hospital, showed that there were 12 diabetic per thousand general admissions for 1909-1919 and 3 per thousand for 1921-1926, an increase of 150 per cent. The rates at Bellevue Hospital for approximately similar periods were 3.2 and 7.3 per thousand respectively, an increase of 128 per cent. Thus the frequency of diabetes in two large charity hospitals in widely separated sections of the country increased at nearly the same rate, although their initial levels were different.

#### READMISSION OF DIABETIC PATIENTS

The percentage of diabetes readmissions in 1911-1916 was 8.4, and in 1917-1922 it was 7.9, but after the introduction and use of insulin the percentage of readmissions increased to 13.9 in 1923-1928 and 19.2 in 1929-1934 (table 2). It is significant that not one of the patients treated for diabetes in the period 1911-1916 was readmitted in 1917-1922. Of those treated in 1917-1922, only thirty,<sup>2</sup> or 3.1 per cent, were readmitted during the early Banting period 1923-1928, whereas 182, or 9.8 per cent, of those treated in 1923-1928 were readmitted during the later Banting period, 1929-1934.

Hence it is evident from this record of readmissions that the life span of the diabetic patient has been prolonged by the use of insulin.

#### DIABETES CASE FATALITY

The case fatality rate is a statistical expression of the ratio of the number of deaths to the total number of treated cases and therefore may be used as an index of the effectiveness of treatment.

In tabulating the frequency of diabetes, all cases were included regardless of any other associated diagnoses, therefore it is logical that the same procedure should be followed in computing the case fatality rate. For this reason every fatal case was charged to diabetes, although diabetes may not have been the cause of death.

The total number of treated diabetic patients, the total number of fatal cases and the number of deaths per hundred treated cases (the case fatality rate) for

TABLE 1—Frequency of Diabetes in Bellevue Hospital

	Total General Hospital Admissions	Total Diabetes Admissions	Diabetes Admissions per 1 000 General Hospital Admissions	First Diabetes Hospital Admissions (New Cases)	Treated Diabetic Patients
1911-1916	253 406	714	2.8	634	634
1917-1922	255 096	109	4.2	975	975
1923-1928	296 377	2 164	7.3	1 854	1 864
1929-1934	366 444	3 535	9.7	2 676	2 858
Total	1 171 323	7 472		6 139	6 311

each six-year period, are shown in table 3. The fatality rate per hundred diabetic patients in 1911-1916 was 29.1, in 1917-1922 it was 24.3, in 1923-1928 it was 21.1 and in 1929-1934 it was 17.5. A comparison of these rates shows that the reduction between 1911-1916 and 1917-1922 was 16.5 per cent between 1917-1922 and 1923-1928 it was 13.2 per cent, and between 1923-1928 and 1929-1934 it was 17.1 per cent. Thus the downward trend of the diabetes case fatality rate began before the introduction of insulin, and the rate of reduction was somewhat curtailed in the early Banting period. However, in the later Banting period the rate

of reduction was accelerated, owing probably to the more effective use of insulin.

Hajek<sup>3</sup> reported the diabetes case fatality rate at St. Luke's Hospital in New York as 19 per hundred for the two-year period 1920-1921 and 11.6 for the eight-year period 1923-1930, a decrease of 38.9 per cent. Fitz and Murphy<sup>4</sup> showed that the average annual case fatality rate at the Peter Bent Brigham Hospital in Boston was 9 per hundred for 1913-1922 and Flynn,<sup>5</sup> reporting from the same hospital, showed that the rate was 7 per hundred for the period 1923-1933, a decrease of 22.2 per cent. For approximately the same periods, the diabetes case fatality rates at Bellevue

TABLE 2—Readmission of Diabetic Patients into Bellevue Hospital

	Total Diabetes Admissions	Treated Diabetic Patients	Readmissions		Readmissions First Admissions Preced.
			Number	Per Cent	
1911-1916	714	634	60	8.4	634
1917-1922	1 090	975	84	7.9	975
1923-1928	2 164	1 864	300	13.9	1 854
1929-1934	3 535	2 858	617	19.2	2 616

Hospital were 26.2 for 1911-1922 and 18.9 for 1923-1934, a decrease of 28 per cent. Although the diabetes case fatality rate in Bellevue Hospital is higher than that reported from other hospitals, the rate of reduction in this large charity hospital since the use of insulin compares favorably with that found in private institutions.

#### DIABETES AS A CAUSE OF DEATH

In this study, deaths occurring in patients with diabetes were tabulated as diabetes deaths. The diabetes mortality statistics from Bellevue Hospital may be compared with those of the entire city of New York, as the method of classification in use in the New York City Department of Health is quite similar, except that the diagnoses of certain important infectious diseases, such as pulmonary tuberculosis, typhoid and syphilis as well as cancer and occupational poisonings and violent deaths take precedence over diabetes.

The total number of deaths from all causes, the number of deaths charged to diabetes, and the percentage of deaths from diabetes in the total number of deaths from all causes, as found in Bellevue Hospital and reported for the entire city of New York,<sup>6</sup> are shown in table 4. The rise in the number of diabetes deaths per hundred total deaths in Bellevue Hospital from 0.95 in 1911-1916 to 2.1 in 1929-1934, an increase of 121 per cent, and from 1.26 to 2.63, or 108.7 per cent in the entire city of New York, indicates that there has been a relatively greater increase in diabetes deaths as compared to the total deaths, and that the rate of increase was practically the same in Bellevue Hospital and in New York City.

It has been suggested that there is an upward trend of deaths from diabetes because of the greater total number of diabetic patients in the entire population owing to more careful and efficient diagnoses and to the longer life span made possible in this disease.

3 Hajek J. Mortality in 985 Cases of Diabetes Mellitus. *New York State J. Med.* 33: 802 (July 1) 1933.

4 Fitz Reginald and Murphy W. P. The Causes of Death in Diabetes Mellitus. *Am. J. M. Sc.* 168: 313 (Sept.) 1924.

5 Flynn J. M. The Changing Causes of Death in Diabetes Mellitus. *Am. J. M. Sc.* 189: 157 (Feb.) 1935.

6 1901-1935. Official Reports of the Department of Health, City of New York.

1 Lemann I. I. Diabetic Gangrene in the South. *J. A. M. A.* 89: 69 (Aug. 27) 1927.

2 The patients were admitted for the first time in 1921 or 1922.

through the use of insulin.<sup>7</sup> The present survey supports this hypothesis. The number of deaths from diabetes in Bellevue Hospital increased from 190 in 1911-1916 to 499 in 1929-1934, or 162.6 per cent, whereas the number of diabetic patients in the hospital increased from 654 to 2,858 or 337 per cent. In other words, the number of deaths increased with the number of diabetic patients, but the rate of increase was much lower.

#### ESTIMATED FREQUENCY OF DIABETES IN NEW YORK CITY

Diabetes not being a reportable disease, the only accurate method for estimating its frequency is to examine thoroughly a large representative group of the population and apply the results to the community as a whole. This method, being impracticable, it has been necessary to base estimates on data obtained from sickness surveys, health department mortality reports, and life insurance and health group examinations. However, sickness survey and mortality statistics reveal only the number of known sick and dead diabetic patients, thus no clue as to the number of well or unrecognized cases is obtained whereas life insurance company and health group statistics disclose the situation in the adult population (mostly male) of the higher economic and social groups. Hence these groups of statistics are not representative of the entire community and it is therefore necessary to find data that are more representative and base an estimate on them.

In table 4 it will be noted that the ratio of deaths from diabetes to total deaths in 1911-1916 was 1.3 times greater in New York City than in Bellevue Hospital, 1.3 in 1917-1922, 1.1 in 1923-1928, and 1.3 in 1929-1934. Since this relationship remained practically constant for four consecutive six-year periods, during which the number of deaths from diabetes increased at a greater rate than deaths from all other causes, it seems reasonable to assume that the change of the diabetes situation in Bellevue Hospital reflects the trend in the entire city. Consequently it is of the utmost importance to examine the Bellevue diabetes statistics and determine their value, as a basis for estimating the frequency of the disease in New York City.

TABLE 3—*Diabetes Case Fatality Rate in Bellevue Hospital*

	Treated Dia- betic Patients	Diabetes Deaths	Fatality Rate per Cent
1911-1916	654	190	29.1
1917-1922	975	236	24.3
1923-1928	1,864	394	21.1
1929-1934	2,858	499	17.5
Totals	6,351	1,319	

The limitations inherent in hospital morbidity and mortality statistics as a basis for estimating the number of diabetic patients in any community are acknowledged. Bellevue, however, is a general charity hospital of 2,200 beds admitting acute cases, with more than 60,000 annual admissions and an age distribution quite similar to that of the entire city population. Approximately 23 per cent of its discharged diabetic patients were unaware of their condition before admission,<sup>8</sup> and a large number of known diabetic patients were admitted and treated for conditions other than diabetes, furthermore the majority of the admissions are from

the lower economic and social groups, which, it has been shown,<sup>9</sup> have a lower percentage of diabetic patients.

It appears then, that the Bellevue Hospital diabetes morbidity and mortality statistics combined with the mortality statistics of the entire city of New York may be the basis for estimating, with a fair degree of accuracy, the maximum frequency of diabetes in the entire city. Thus the frequency of diabetes in the

TABLE 4—*Diabetes as a Cause of Death*

	Bellevue Hospital			New York City		
	Total Deaths from All Causes	Deaths Charged to Diabetes	Per Cent of Deaths in Total Deaths from All Causes	Total Deaths from All Causes	Deaths Charged to Diabetes	Per Cent of Deaths in Total Deaths from All Causes
1911-1916	19,942	190	0.95	451,150	5,700	1.26
1917-1922	20,964	236	1.13	458,325	6,762	1.48
1923-1928	22,133	394	1.78	437,171	8,450	1.94
1929-1934	23,752	499	2.10	435,117	11,934	2.63

general population, during each of the four six-year periods, may be estimated by substituting the known values in the following ratio:

$$\frac{\text{Number diabetic per 1,000 population A}}{\text{Number diabetes deaths per 100 deaths from all causes B}} = \frac{\text{Number diabetes admissions per 1,000 general admissions C}}{\text{Number diabetes deaths per 100 deaths from all causes D}}$$

With this formula the frequency of diabetes in the entire city of New York was estimated to be about 3.7 per thousand of population in 1911-1916, 5.5 in 1917-1922, 8.0 in 1923-1928 and 12.2 in 1929-1934.

It must be emphasized that these estimates are based on a survey of completely examined individuals of all ages, many of whom were wholly unaware of their condition until after admission into the hospital.<sup>8</sup> Hence they indicate the frequency of the total diabetes cases, diagnosed and as yet undiagnosed. On the other hand, most estimates previously reported in the literature were based on statistics of individuals cognizant of their condition and therefore are indicative only of the recognized cases of diabetes.

On the basis of their recent analysis of the available data on the incidence of diabetes, Joslin, Dublin and Marks<sup>9</sup> estimated the frequency of known diabetic patients in the entire United States as between 2.5 and 3 per thousand of population. However, they pointed out that diabetes is more prevalent in the Northeastern states—probably 4 per thousand of population, as was found in Massachusetts.<sup>10</sup> Since, as these authors further pointed out, the disease is more frequently encountered in urban areas than in rural ones, the incidence of diagnosed cases of diabetes would thus be between 4 and 5 per thousand of population in New York City.

Since the frequency of all diabetic patients diagnosed and as yet undiagnosed, averaged, according to the study here presented, 12.2 per thousand during the period 1929-1934, and the frequency of the diagnosed cases was between 4 and 5 per thousand, the frequency of unrecognized cases of diabetes may be estimated as between 7.2 and 8.2 per thousand. Thus from one half to two thirds of all diabetic persons in the city of New York are unaware of their condition. Evidence in

9 Joslin F P, Dublin L I and Marks H H. Studies in Diabetes Mellitus. II. Its Incidence and the Factors Influencing Its Variations. *Am J Med Sc* 187: 433 (April) 1934.  
10 Gleason C H and Lombard H I. Cancer and Other Chronic Diseases in Massachusetts. *Report to the Massachusetts Medical Commission* 1933.

7 Mesenthal H O and Bolduan C F. Diabetes Mellitus. Problems of Present Day Treatment. *Am J Med Sc* 186 (6) (Nov) 1933.  
8 Martin Caroline. Personal communication to the author.

favor of this concept is found in the reports of various surveys<sup>11</sup> of completely examined groups of apparently well adults in this country. A summary of these observations is presented in table 5.

In view of the unanimity of opinion that proper treatment in the early stages of diabetes will alter its

TABLE 5—Frequency of Glycosuria in Apparently Well White Adults

		Total Examined	Sex	Glycosuria				Total	
				Less than 1 per Cent		More than 1 per Cent		Num ber	Per Thou sand
				Num ber	Per Thou sand	Num ber	Per Thou sand		
Barringer <sup>11</sup>	1909	71 729	♂	1 362	19.0	631	9.5	2 043	28.5
Dublin, Flisk and Kopf <sup>11</sup>	1925	16 662	♂	600	36.0	83	5.0	683	41.0
Sydenstricker and Britten <sup>11</sup>	1930	100 924	♂	5 027	49.8	399	4.0	5 496	53.8
Britten <sup>11</sup>	1931	11 694	♀	500	42.8	4*	3.7	543	46.5
Bolduan <sup>11</sup>	1933	3 683	♂ ♀					04	20.5
personal communication	1935								
Totals		204 694		7 489		1 206		8 759	42.9

course and prognosis,<sup>12</sup> it is extremely important that this large group of unrecognized diabetic persons should be accorded proper medical supervision.

#### ESTIMATED DIABETES CASE FATALITY RATE IN NEW YORK CITY

The case fatality rate during each of the four six-year periods was computed from the estimated total number of diabetes cases and the reported deaths. The estimated diabetes case fatality rate for the entire city of New York fell from 5 in 1911-1916 to 3.6 in 1917-1922, to 2.8 in 1923-1928 and to 2.3 in 1929-1934 (table 6).

The decline in the case fatality rate from 4.3 in the preinsulin period of 1911-1922 to 2.55 in the Banting period of 1923-1934 reveals the effectiveness of modern diabetes treatment. In the face of this 40.7 per cent drop in the diabetes case fatality rate since the introduction and use of insulin, the skeptical observer may ask "Why has the crude diabetes death rate increased from 19.3 in 1911-1922 to 25.0 in 1923-1934?"

The crude diabetes death rate is the ratio of the total number of diabetes deaths, taken as a unit, to the general population.<sup>13</sup> Consequently, any factor that tends to raise the number of diabetes deaths contributes to an increase in its death rate, whereas a decrease will be caused by a fall in the case fatality rate and/or an increase in the general population. Since this survey shows that the total number of diabetic patients increased 177.2 per cent from 1911-1922 to 1923-1934 while the fatality rate fell 40.7 per cent and the general population increased 26.1 per cent, it is evident that the 29.5 per cent increase in the diabetes death rate only reflects the greater increase in the total number of cases of diabetes.

11 Barringer, T. B. The Incidence of Glycosuria and Diabetes in New York City Between 1902 and 1907. Arch. Int. Med. 3: 295 (May) 1909. Dublin, L. I., Flisk, E. L., and Kopf, E. W. Physical Defects as Revealed by Periodic Examinations. Am. J. M. Sc. 170: 576 (Oct.) 1925. Sydenstricker, Edgar, and Britten, R. H. The Physical Impairments of Adult Life (Males). Am. J. Hyg. 11: 73 (Jan.) 1930. Britten, R. H. Sex Differences in the Physical Impairments of Adult Life. Am. J. Hyg. 13: 7-1 (May) 1931. Bolduan, C. F. Quarterly Bulletin New York City Department of Health 7: 33, 1933.  
12 Von Noorden, Carl. Disorders of Metabolism and Nutrition. New York: E. B. Treat & Co. 1935. Joslin, E. P. The Treatment of Diabetes Mellitus. Philadelphia: Lea & Febiger, 1928.  
13 Traub, J. W., in Rosenau, M. J. Vital Statistics. Preventive Medicine and Hygiene. New York: D. Appleton & Co. 1927.

#### SUMMARY

1 The frequency of diabetes in Bellevue Hospital rose from 2.8 per thousand general admissions in 1911-1916 to 9.7 in 1929-1934, an increase of over 246 per cent.

2 The diabetes first admissions (new cases) increased nearly 310 per cent between 1911-1916 and 1929-1934.

3 The diabetes readmissions increased from 8.4 per cent in 1911-1916 to 19.2 per cent in 1929-1934.

4 Not one of the patients treated in 1911-1916 was readmitted in 1917-1922, but 9.8 per cent of the patients treated in 1923-1928 were readmitted in 1929-1934.

5 The percentage of deaths among diabetic patients (case fatality rate) in Bellevue Hospital fell from 29.1 in 1911-1916 to 17.5 in 1929-1934, a decrease of 40 per cent.

6 The number of diabetes deaths per hundred deaths from all causes in Bellevue Hospital increased from 0.95 in 1911-1916 to 2.1 in 1929-1934, or 121 per cent, whereas in the city of New York as a whole it increased from 1.26 to 2.63, or 109 per cent.

7 The frequency of diabetes in New York was estimated as 3.7 per thousand of population in 1911-1916, 5.5 in 1917-1922, 8.0 in 1923-1928 and 12.2 in 1929-1934.

8 The total number of diabetic persons in New York City during 1929-1934 was estimated as nearly 90,000 annually. It is believed that from one half to two thirds of these individuals are unaware of their condition.

9 The diabetes case fatality rate in New York City was estimated as 5 per hundred in 1911-1916, 3.6 in 1917-1922, 2.8 in 1923-1928 and 2.3 in 1929-1934. Since the introduction of insulin, the average yearly case fatality rate fell 40.7 per cent.

#### CONCLUSIONS

1 The frequency of diabetes mellitus in Bellevue Hospital has been increasing over a period of twenty-four years.

2 The life span of the diabetic patient has been definitely prolonged by the use of insulin.

TABLE 6—Diabetes Fatality and Death Rate in New York City

	Average Yearly Population	Frequency of Diabetes per 1 000 Population*	Average Yearly Diabetic Patients*	Average Yearly Diabetes Deaths†	Crude Diabetes Death Rate per 100 000	Diabetes Case Fatality Rate per Cent
1911-1916	5 092 766	3.7	18 843	900	18.6	5.0
1917-1922	5 649 850	5.5	31 074	1 197	19.9	3.6
1923-1928	6 386 927	8.0	51 090	1 410	22.1	2.8
1929-1934	7 141 106	12.2	87 231	1 022	27.8	2.3

\* Estimated  
† Official records

3 The downward trend of the diabetes case fatality rate began before the introduction of insulin but has been accelerated in the later insulin period.

4 The number of diabetes deaths increases with the number of diabetic patients, but the rate of increase is much lower.

5 There is a relatively greater increase of diabetes deaths as compared to the total deaths, and the rate of increase is practically the same in Bellevue Hospital and in the city of New York.

6 There are facts which indicate that Bellevue Hospital reflects the trend of diabetes in the entire city of New York.

121 East Sixtieth Street



EFFECT OF GONADOTROPIC EXTRACT  
OF THE PITUITARY IN  
CRYPTORCHIDISMAUGUST A WERNER, MD  
DOUGLAS KELLING MD  
DOROTHY ELLERSIECK, MD

AND

GEORGE A JOHNS MD  
ST LOUIS

Cryptorchidism is a congenital failure of descent of one or of both testicles in the male. The position of these glands may be, first in the peritoneal cavity, secondly, in the inguinal canals, and thirdly, a migratory type in which the testicles alternate between the lower inguinal canals and just outside the external inguinal rings. In the last type the testicles may descend into the upper part of the scrotum when the patient is relaxed, but any manipulation such as palpation causes their withdrawal into the canals.

NECESSITY FOR PRESENCE OF THE TESTES IN  
THE SCROTUM

It is known that the testes will not develop normally if they are not in the scrotum. Moore<sup>5</sup> proved the thermostatic value of the scrotum for normal function of the testes. He demonstrated that the germinal cells take on an irregular appearance and that the seminiferous tubules are irregular throughout if they are allowed to remain in the peritoneal cavity or high up in the inguinal canals. He also proved that when the testes are caused to assume a normal position in the scrotum the germinal epithelial cells of the tubules rearrange themselves in a normal manner and spermatogenesis occurs.

The testes normally descend into the scrotum shortly before birth. It has been said that if the testes do not descend within the first twelve months after birth they will not descend. This is not literally true, for occasionally they do descend as late as from the 15th to the 18th year. However one cannot allow a child to take such a risk. The sooner the cryptorchid condition

## Results of Treatment with Gonadotropic Extract of the Pituitary \*

Case	Dose	Time	Age years	Location of Testes	Descent	Injections	Days
1	1 cc	Every other day	5	Lower inguinal canals	10/4/35 both in scrotum	2	4
2	2 cc	Every other day	6	Left testicle in scrotum			
3	1 cc	Every other day	7	Lower inguinal canals	10/11/35 right down 10/15/35 both down	6 and 8	10 and 15
4	2 cc	Every other day	8	Inguinal canals	11/3/35 both down	17	33
5	1 cc	Every other day	9	Right in midinguinal canal left high up in canal	10/11/35 right down 10/15/35 both down	6 and 8	11 and 15
6	2 cc	Every other day	9	Lower inguinal canals	10/6/35 both down 10/8/35 both down	3 and 4	6 and 8
7	1 cc	Every other day	10	Not palpable in canals	10/6/35 left down 10/29/35 both down 10/4/35 both down	3 and 16	6 and 29
8	2 cc	Every other day	13	Lower inguinal canals		2	4
9	1 cc	Daily	5	Midinguinal			
10	2 cc	Daily	7	Lower inguinal canals	10/5/35 both in scrotum	3	3
11	1 cc	Daily	7	Not palpable in canals			
12	2 cc	Daily	8	Lower inguinal canals	10/3/35 both in scrotum	3	3
13	1 cc	Daily	9	Not palpable in canals			
14	2 cc	Daily	10	Upper inguinal canals	10/23/35 left down 10/26/35 both down	23 and 26	23 and 26
15	1 cc	Daily	13	Lower inguinal canals	10/6/35 both down	6	6
16	2 cc	Daily	13	Lower inguinal canals			
17	2 cc	Daily	7	Inguinal canals	11/3/35 both down	8	8

Gonadotropic principle derived from the anterior pituitary. This was supplied by Parke Davis & Co. All treatments started Sept. 30, 1935, with the exception of case 17 in which treatments were started October 26.

Etiology for failure of testicular descent may be divided into (1) obstructive conditions and (2) endocrine disorders. The obstructive factors are well known. That the anterior pituitary (gonadotropic) hormone is necessary for gonadal development has been conclusively proved.

Aschheim and Zondek<sup>1</sup> found both an estrogenic and a gonadotropic substance in the urine of pregnant women. For a while it was thought that this extract from the urine was identical with the anterior pituitary gonad-stimulating hormone, but this has been disproved by the work of Evans<sup>2</sup>, Collip and his co-workers,<sup>3</sup> Fevold and Hirsch<sup>4</sup> and others.

From the Department of Medicine, St. Louis University School of Medicine.

1. Aschheim, Selmar, and Zondek, Bernhard. Hypophyseenvorderlappenhormon und Ovarialhormon im Harn von Schwangeren. *Klin. Wchnschr.* 6: 1322 (July 9) 1927.

2. Evans, H. M. Present Position of Our Knowledge of Anterior Pituitary Function. *J. U. M. A.* 101: 425-42 (Aug. 5) 1935. Clinical Manifestations of Dysfunction of the Anterior Pituitary. *ibid.* 104: 464 (Feb. 9) 1935.

3. Collip, J. B., Selve, Han, Anderson, Evelyn M., and Thomson, D. L. Production of Estrus: Relationship Between Active Principles of the Placenta and Pregnancy Blood and Urine and Those of the Anterior Pituitary. *J. A. M. A.* 101: 1553-1556 (Nov. 11) 1933. Collip, J. B. Interrelationships Among Urinary, Pituitary and Placental Gonadotropic Factor. *J. A. M. A.* 104: 556 (Feb. 16) 1935.

4. Fevold, H. I., and Hirsch, F. I. Interactions of Gonadotropic Hormones in Ovarian Development. *Am. J. Physiol.* 109: 555 (Oct.) 1934.

is recognized and corrected, the better it will be for the patient.

## TREATMENT OF UNDESCENDED TESTES

Until quite recently the treatment of undescended testes has been operative with variable results and more or less danger to the patient.

There have been more than forty different operations described in the literature for alleviation of this condition.

That surgical measures should be used only as a last resort to place the testicles in the scrotum has been proved by the successful induction of descent of these organs by the use of anterior pituitary-like extracts from pregnancy urine and a gonadotropic extract derived from the anterior pituitary gland which was used in this experiment.

Schiapero<sup>6</sup> in 1930 reported the treatment in thirteen cases of cryptorchidism with pregnancy urine extract with improvement in all cases. Engle hastened the

5. Moore, C. R. Hormones in Relation to Reproduction. *Am. J. Obst. & Gynec.* 20: 1 (Jan.) 1935.

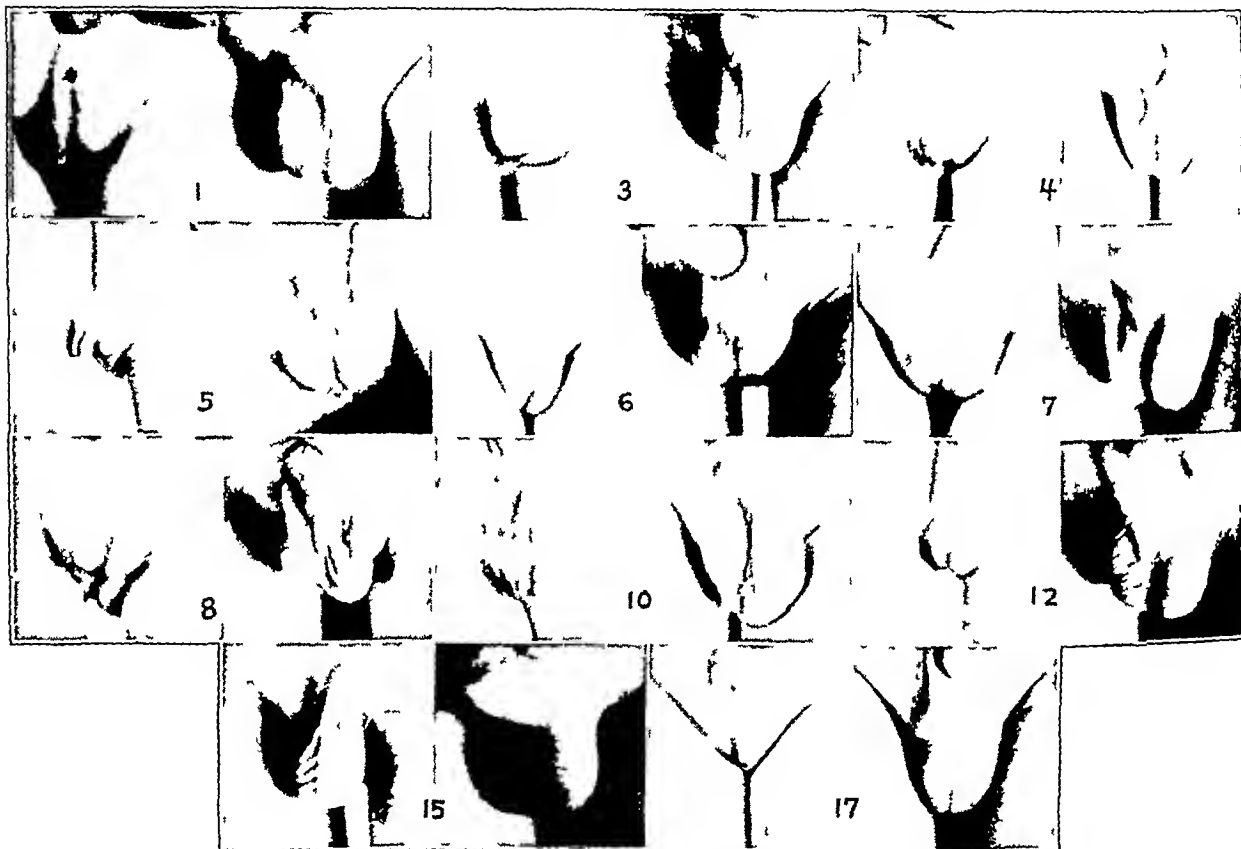
6. Schiapero, B. Kann man mit Hypophyseenvorderlappen den unterentwickelten männlichen Genitalapparat beim Menschen zum Wachsen anregen? *Deutsche med. Wchnschr.* 56: 1605 (Sept. 19) 1930. Klinische Studien über die Wirkung des Hypophyseenvorderlappens auf den männlichen Genitalapparat. *Ztschr. f. klin. Med.* 114: 610 1930.

growth of testes in immature rats and monkeys.<sup>7</sup> Brosius<sup>8</sup> reported descent of the testes in six cases and partial descent in two following the injection of gonadotropic substance from pregnancy urine. Brosius and Schaefer<sup>9</sup> produced spermatogenesis in a case presenting bilateral testicular atrophy following orchitis as a complication of mumps by the use of gonadotropic substance from the urine of pregnancy. The question remains in this instance as to whether the spermatogenesis was due to the latter substance or was a result of stimulation of the anterior pituitary to secrete gonadotropic hormone. Since then many instances of the successful treatment of cryptorchidism by the use of the various preparations of pregnancy urine extract have been reported.

regions, the sides being alternated each time. Every day or every other day 1 or 2 cc was injected, depending on which group the subject was in.

The table shows that both testicles descended into the scrotum in nine out of twelve boys within fifteen days after the onset of the injections. The remaining three boys required twenty-six, twenty-nine and thirty-three days.

The testicles in case 14, which descended into the scrotum on the twenty-third and the twenty-sixth day, alternated in position between the lower inguinal canals and the scrotum at different times since their descent and as yet have not remained descended permanently. Since they have been in the scrotum, which is evidence of no obstruction to their descent, it can be reasonably



Appearance before and after injections of gonadotropic extract of pituitary in eleven cases of cryptorchidism

#### TREATMENT OF CRYPTORCHIDISM WITH ANTERIOR PITUITARY GONADOTROPIC EXTRACT

It was interesting to know what effect the anterior pituitary gonadotropic extract would have on human cryptorchidism. A group of seventeen cryptorchid boys ranging in age from 5 to 13 years, as shown in the accompanying table, were treated with an extract derived from the anterior pituitary gland, standardized to contain 10 rat units of gonadotropic principle per cubic centimeter.

The boys were arranged according to age from the youngest to the oldest and gonadotropic hormone was administered intramuscularly in the upper gluteal

expected that they will finally remain descended at some not far distant date.

At the end of forty-nine days the dosage was changed so that each boy received 2 cc of anterior pituitary gonadotropic extract daily for a period of six weeks, regardless of whether the testes had descended or not. This was done to determine what effect the increased dosage would have on the development of the descended testes and whether it would cause descent of the testes in the boys who had had failure of descent.

There was some development of the testes after their descent. In most instances they were firm, but increase in size was not beyond that normal for the age of the individual. Increased dosage did not cause descent of the testes in five boys of this group who had failure of descent with smaller dosages, which indicates that probably these five boys have anatomic anomalies of development or obstruction which will require surgical procedures to place the testes in the scrotum.

7. Engle, E. T. The Action of Extracts of Anterior Pituitary and of Pregnancy Urine on the Testes of Immature Rats and Monkeys. *Endocrinology* 16: 506 (Sept. Oct.) 1932.

8. Brosius, W. L. Clinical Observations on the Effects of A. P. L. (Antuitrin S) on the Testicle. *Endocrinology* 19: 69 (Jan. Feb.) 1935.

9. Brosius, W. L. and Schaefer, R. L. Spermatogenesis Following Therapy with the Gonad Stimulating Extract from the Urine of Pregnancy. *J. A. M. A.* 101: 1227 (Oct. 14) 1933.

## CONCLUSIONS

1 Anterior pituitary gonadotropic extract is effective in causing descent of the testes in many cryptorchid boys

2 These results indicate that, before operative procedure is considered to correct cryptorchidism, anterior pituitary gonadotropic extract or anterior pituitary-like substance should be administered for approximately thirty days

3 If the testes do not descend into the scrotum after the administration of these hormone extracts, surgical procedures are justified

404 Humboldt Building

INDIRECT FRACTURE OF THE RIB  
IN PULMONARY TUBERCULOSIS

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In a series of 1,903 tuberculous patients admitted to the sanatorium during the past five years, there were twenty individuals in whom a fracture of one or more ribs occurred as a result of muscular violence associated with coughing. There was one instance among 1,194 incipient cases (0.08 per cent), twelve among 601 moderately advanced (2 per cent) and seven among 108 far advanced (6.5 per cent). Ten additional cases were discovered in our outpatient department, making a total of thirty. In no instance was there a history of direct trauma and this factor may be reasonably excluded at least in ten of the patients who were confined to bed at the time the fracture occurred.

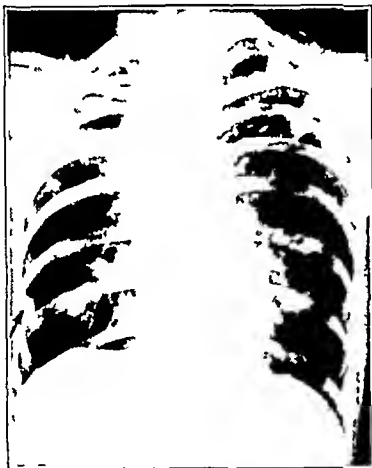


Fig 1 (case 1)—Roentgenographic appearance of chest showing fracture of the sixth rib on the right side

The incidence of fractures in this series leads me to agree with the view expressed by Stimson<sup>1</sup> some fifty years ago: "Fractures of one or more ribs are not infrequently caused by violent coughing," a statement to which in 1905 he added the significant phrase "especially in the consumptive." However, from a review of the literature one would conclude that the condition is rare. Graves<sup>2</sup> reported the first instance of indirect fracture of the rib in 1833, yet Wahl<sup>3</sup> in a comprehensive survey of the literature in 1926 found only sixty-six cases and since that time only a few others have been added. In the cases recorded in the literature the accident occurred occasionally in healthy individuals but usually in patients with pulmonary disease notably tuberculosis. Aside from coughing the

fracture was ascribed to muscular efforts during parturition, vomiting, sneezing, straining at stool, and lifting heavy objects.

The present paper reports the occurrence of fractures of the ribs during the course of pulmonary disease in thirty patients, comprising twenty-three women and seven men between the ages of 18 and 47. Twenty-four were suffering from pulmonary tuberculosis, three from silicosis complicated by tuberculosis and the remaining three from chronic bronchitis. In the cases observed, the fractures occurred in one or several of the ribs from the fifth to the eleventh inclusive. In no instance were fractures of the upper four ribs found. The fractures were single in seventeen instances and multiple in thirteen, unilateral in twenty-six instances and bilateral in four. The highest number encountered in any one patient was four, the result probably of a series of accidents, although it is not unlikely that more than one rib may be fractured simultaneously by muscular violence. The majority of the fractures occurred at approximately the junction of the anterior and middle thirds of the rib. Pain, although not severe, was an almost constant symptom and like the characteristic pain of pleurisy was aggravated on inspiration. The nature and location of the pain and the absence with few exceptions, of any displacement of the fragments on physical or radiographic examination usually led to the erroneous diagnosis of pleurisy. However this mistake in diagnosis was subsequently corrected by the study of the x-ray film taken a few weeks later, which disclosed the shadow cast by the callous formation at the site of the fracture. Once the location of the fracture was known, a review of the x-ray films taken when the pain first occurred frequently revealed a delicate linear shadow denoting the line of cleavage of the rib.



Fig 2 (case 1)—4 sectional enlargement of figure 1, B six months later showing complete union

The following two brief clinical histories illustrate the significance and course of fracture of the ribs occurring as a result of muscular violence in pulmonary tuberculosis.

Miss A, a pale thin febrile patient with advanced pulmonary tuberculosis and a severe productive cough complained of a



Fig 3 (case 2)—Roentgenographic appearance of chest ten months before death showing old fracture of the seventh rib and recent fracture of the sixth rib

From the New York State Hospital for Incipient Pulmonary Tuberculosis.

<sup>1</sup> Stimson I. A. A Treatise on Fracture. Philadelphia: Henry C. Lea's Sons Company, 1883, p. 96. A Practical Treatise on Fractures and Dislocations, ed. 4, 1905, pp. 41-42.

<sup>2</sup> Graves K. J. Dublin J. M. & Chem. Sc. 3, 55, 1833, Ann. J. M. Sc. 13, 14, 533 (No. 26), 1834.

<sup>3</sup> Wahl E. Wien klin. Wchnchr. 39, 1215 (Oct. 1-4), 1926.

dull, aching pain in the axilla on the right side, aggravated on inspiration and relieved on expiration. Although there was no evidence of pleurisy except the location and characteristic nature of the pain, the diagnosis of pleurisy seemed justified in the presence of pulmonary tuberculosis and the absence of any other condition that would adequately explain the cause of the pain. Three weeks after the onset of the pain, a chest roent-



Fig 4 (case 2) —Sectional enlargement

genogram revealed a shadow at the junction of the anterior and middle thirds of the sixth rib, cast unmistakably by callous formation (fig 1 and fig 2 A). A chest film six months later showed that the callus had been completely absorbed leaving no evidence of the preexisting fracture (fig 2 B).

Miss B, with advanced pulmonary tuberculosis and a severe productive cough, had inspiratory pain in the left axilla. Pleurisy was diagnosed because of the character of the pain. A chest film a month later revealed a shadow cast by callous formation at the junction of the anterior and middle thirds of the seventh rib. After almost three years the inspiratory pain recurred in the left axilla and by the x-rays a fracture of the sixth rib in the axillary line was discovered (figs 3 and 4). The patient

died ten months later. At necropsy, the seventh rib at the site of the fracture presented a pseudarthrosis; the more recent fracture of the sixth rib, a sound callus (fig 5).

#### COMMENT

In view of the clinical histories, direct trauma may be reasonably excluded as the cause of the fractures in the patients included in the present study. The site of election of the fractures at the junction of the anterior and middle thirds of the ribs below the fourth, predominantly the sixth and seventh, suggests that the muscles involved are the serratus magnus and its antagonists, the external oblique, the rectus abdominus and the diaphragm.

In the cases observed there are certain contributory factors of possible significance. In the thirty instances reported in this paper, it is noteworthy that the occurrence of fractures bears a definite relationship to the stage of the tuberculous disease, the incidence being ten times greater in the advanced than in the incipient stage.



Fig 5 (case 2) —Roentgenographic appearance of excised sixth and seventh ribs

The higher incidence in patients with advanced tuberculosis may be attributed not only to the greater severity and frequency of the cough but also to an undue softening of the ribs noted by Smith<sup>4</sup> in a number of tuberculous

subjects coming to necropsy in the later stage of the disease. The incidence of the fractures was more than three times higher in women than in men, owing possibly to the comparative frailness of the ribs in women. The ages of the patients in this group ranged between 18 and 47 but since aged patients are not

treated at the sanatorium, no correlation can be established between incidence and age. In the cases cited it appears that infection plays no part in the causation of the fractures. Thus no relationship was found to exist between the site of fracture and the underlying disease. The callus as a rule was absorbed rapidly and completely, and in the two cases coming to necropsy the site of the fractures showed no evidence of infection. Consequently, it seems justifiable to assume that the fractures were brought about by muscular violence during the act of coughing. In tuberculous patients the location and the character of the pain associated with fracture of the ribs suggests the diagnosis of a complicating pleurisy in the absence of a history of direct trauma, and in those instances in which displacement of the fragments is not evident on physical and roentgenographic examination. The differential diagnosis generally cannot be established until later roentgenograms reveal the shadow of callous formation at the point of fracture.

Errors in differential diagnosis between an indirect fracture of the rib and pleurisy, based on our experience, would adequately explain the paucity of cases cited in the literature. The ribs are fractured more frequently than are the other bones of the body by muscular violence. The accident is not uncommon and occurs "especially in the consumptive," as stated by Stimson many years ago.

## HYPERNEPHROID CARCINOMA OF THE KIDNEY

WITH A TUMOR-THROMBUS FILLING THE INTERIOR VENA CAVA AND RIGHT HEART CAVITIES  
REPORT OF CASE

LEWIS W. WOODRUFF, M.D.  
AND  
VICTOR LEVINE, M.D.  
JOLIET, ILL.

Hypernephroid carcinoma of the kidney, more frequently than any other tumor, may spread into the inferior vena cava by direct extension of a tumor thrombus, may fill this vessel almost completely and in rare instances may penetrate the cavities of the right atrium and ventricle. In the most recent review, Polayes and Taft<sup>1</sup> found eleven cases in which such a tumor-thrombus of renal origin had invaded the heart in this manner, and they added a case of their own. Of these twelve cases, five presented the tumor thrombus extending into both atrium and ventricle, while in the remaining cases the atrium alone was involved. Most of these cases have been characterized clinically by slow, insidious onset with edema of the lower extremities, hematuria, enlarged liver, jaundice, and ascites in the late stage. The case reported here is of interest because of the large size of the tumor thrombus in the right ventricle and the absence of some of the clinical signs that are usually present.

#### REPORT OF CASE

J. K., a man aged 42, a farmer, was admitted, Nov. 1, 1934, in a state of collapse. Since the development of a cold four months previously he had complained of gradually increasing weakness and quick exhaustion, with dyspnea and palpitation.

From St. Joseph's Hospital  
I. Polayes, S. H. and Taft, H. Case of Hypernephroma with  
Tumor Thrombosis of Vena Cava and Heart. *Am. J. Path.* 7: 6170  
(Jan.) 1931.

and a slight cough. Jaundice had been present for several weeks and had increased in the past few days. He had lost 4 pounds (18 Kg) up to October 17, at which time he had been examined in a physician's office. The essential observations at that time were a temperature of 100 F, a palpable but not tender right kidney, only slightly increased hilar shadows as shown in roentgenograms of the chest, hemoglobin,

with a few 1 to 2 mm blood clots. These cavities had a direct connection with the branches of the renal veins which were also filled by partly softened light yellow-gray to purple-gray masses. These masses continued into the right renal vein and inferior vena cava. The inferior vena cava was blocked by a firm light yellow-gray to light purple gray mass, which extended for 4 cm below the opening of the renal veins up to the opening in the right auricle and occluded the openings of the hepatic veins.

The heart was distended and softened and weighed about 350 Gm. When the right side was opened it was found that the firm thrombus in the inferior vena cava extended as a cylindric mass that completely filled the atrium and the tricuspid orifice (fig 1). The mass was 5 cm in diameter and extended for a distance of 5 cm into the ventricle. On its tip was a tail 3 cm long and 1.5 cm in diameter. This thrombus-like mass was slightly adherent to the auricular surface of the tricuspid valve.

Microscopic examination disclosed that the large mass in the upper pole of the right kidney was composed of a solid mass of large polygonal cells with clear ample cytoplasm and deep staining anaplastic nuclei. Large areas were completely necrotic. The thrombus like mass in the right ventricle was composed of irregular cords of cells, similar to those seen in the mass in the kidney intermingled with fibrin (fig 2). The nodules in the lung were composed of groups of cells similar to those in the mass in the kidney.



Fig 1—T tumor thrombus filling right atrium, tricuspid orifice and extending into right ventricle. About one third natural size.

70 per cent with 3,600,000 red blood cells and 14,200 white blood cells. Urinalysis showed albumin one plus, a trace of bile and a few white and red blood cells in clumps and a negative Kahn reaction of the blood. Two days before admission into the hospital a loud systolic murmur was audible over the lower part of the sternum.

Examination was difficult because of the patient's extreme weakness. There was a marked jaundice of the skin and sclerae. The state of nutrition was good but there appeared to be considerable pallor. The heart tones were barely audible, the pulse was palpable but very weak. No rales or rhonchi on percussion were noted in the chest. The abdomen was moderately distended with the liver edge palpable two finger-breadths below the costal border. The kidneys and spleen were not palpable. Edema of the lower extremities or of the scrotum was not present. No blood could be obtained from the veins and only sufficient from the finger for a hemoglobin determination which was 50 per cent and a differential count which showed neutrophils 82 per cent, lymphocytes 12 per cent, monocytes 3 per cent, and eosinophils and basophils each 1 per cent. Urinalysis showed albumin 2 plus, bile 1 plus, several coarse granular casts and from 100 to 150 red blood cells per high power field. A transfusion of 500 cc of citrated blood was given but the patient died sixteen hours after admission. The only diagnosis suggested was carcinoma of the liver or biliary tract.

Postmortem examination was done by Dr. L. J. Wilhelm. The body was rather well nourished. The skin was markedly jaundiced. The abdomen contained about 1500 cc. of a clear straw-colored fluid. The lungs were everywhere studded with innumerable firm spherical nodules from 1 to 2 mm in diameter which were slightly raised above the external and cut surfaces. They varied from light gray to purple gray.

The right kidney was 18 by 9 by 8 cm. Its upper pole was replaced by a yellow-gray to purple-gray irregular mass 6 cm in diameter. The central portion was solidly light yellow. Throughout the parenchyma of the kidney, especially in the lower half, there were numerous cavities from 5 to 10 mm in diameter, partly filled with semiliquid yellow-gray material

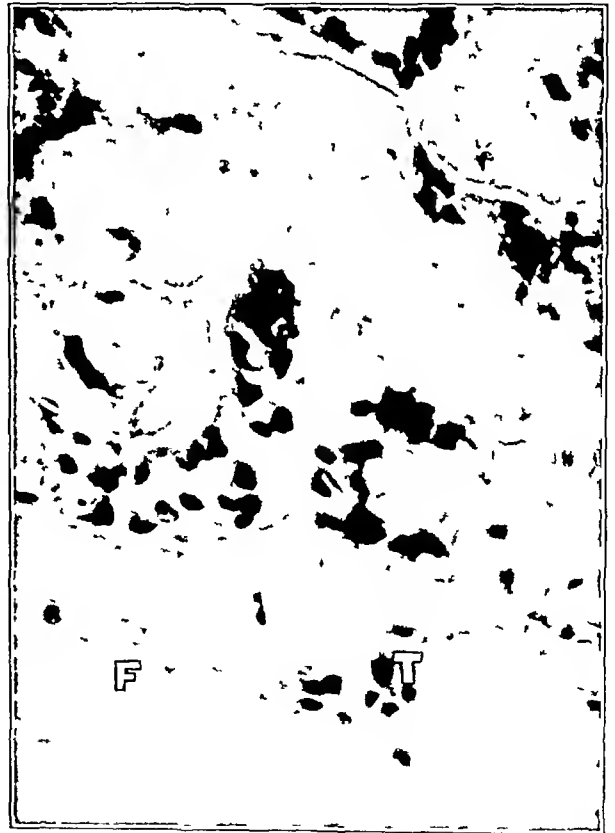


Fig 2—Tumor thrombus showing tumor cells (T) intermingled with fibrin (F). Hematoxylin-eosin stain,  $\times 450$ .

The anatomic diagnosis was hypernephroid carcinoma of the upper pole of the right kidney with marked necrosis in the center of the tumor, multiple metastases to both lungs, extension of the carcinoma into the renal veins with the formation of a tumor thrombus, extension of the tumor-thrombus into the inferior vena cava, right atrium and right ventricle with obstruction of the hepatic veins and tricuspid orifice, icterus, gravis, slight ascites.

## COMMENT

Simpson<sup>2</sup> in 1924 also reviewed the literature on tumor-thrombus of the inferior vena cava. He found that 50 per cent of tumor-thrombi in this location were due to extension from a kidney, 20 per cent of testicular origin, 10 per cent following primary carcinoma of the liver and 9 per cent secondary to an adrenal tumor. Simpson found that in half of the cases of this type due to kidney tumors the tumor-thrombus extended into the heart. He also discussed the difficulty of making the diagnosis of this condition during life, pointing out that, even in instances in which it was necessary to ligate the inferior vena cava, the ill effects are usually transient and consist of a temporary edema of the lower extremities and an inconstant phlebectasia of the superficial collateral vessels.

The possibility of making a correct clinical diagnosis of obstruction of the inferior vena cava is therefore rather slight. Edema of the lower extremities and scrotum, ascites, dilatation of collateral veins, hematuria, jaundice and enlarged liver are the most frequent symptoms reported in the cases of obstruction following kidney tumor. The early subjective symptoms in our patient were increasing weakness, cough and dyspnea. In addition, a moderate anemia and a slight hematuria were also present. The early examination disclosed a palpable right kidney. Later a definite heart murmur, which was loud, systolic and located over the sternum, and a palpable liver also were noted. Slight ascites also developed terminally. Edema of the lower extremities and scrotum and dilatation of the superficial veins were never present, and their absence made it practically impossible to make a correct diagnosis before death. The probability is that the obstruction developed gradually and that the collateral circulation had sufficient time to compensate, thus causing no edema. In several of the cases quoted by Polayes and Tift,<sup>1</sup> edema was absent or transient.

The correct diagnosis in this type of case might be made, however, by the use of circulation time tests. Katz<sup>3</sup> has done this in one case using calcium bromide and determining the time required to develop a sensation of heat. He found that the normal circulation time from the foot was from seventeen to nineteen seconds. In the case in which there was obstruction of the inferior vena cava the circulation time was seventy seconds.

Other substances that have been used in determining circulation time were sodium dehydrocholate (decholin sodium) used by Winternitz, Deutsch and Brull,<sup>4</sup> and by Tarr, Oppenheimer and Sager,<sup>5</sup> which gives a bitter taste, saccharin, used by Fishberg, Hitzig and King,<sup>6</sup> which gives a sweet taste, and ether, used by Hitzig,<sup>7</sup> which gives an odor of ether. Allen and Barker<sup>8</sup> used injections of colloidal thorium dioxide, 25 per cent and de Takats<sup>9</sup> has used injections of skiodan to

outline veins on roentgen examination. None of these investigators tried their methods in obstruction of the inferior vena cava, but one or all of the methods might be used, especially the ether method of Hitzig, which may be used on an unconscious or a noncooperative patient.

## SUMMARY

A case of tumor-thrombus of the inferior vena cava arising from a hypernephroid carcinoma of the kidney and extending into the right atrium and ventricle, was not diagnosed during life, largely because of the absence of edema of the lower extremities. Circulation time tests might make a correct diagnosis possible in this type of case.

THE CARDIOVASCULAR STATE IN  
THYROTOXICOSIS

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Our purpose in this paper is to review the historical concept of the cardiovascular state in thyrotoxicosis, compare it with current points of view and present the status of the heart in 180 cases of thyrotoxicosis in modern terms.

Caleb Hillier Parry<sup>1</sup> in 1825 reported a case of exophthalmic goiter and rheumatic infection. The patient eventually died of congestive heart failure with out record of autopsy. Subsequently, he reported five other cases describing thyrotoxicosis with organic heart disease in at least two of them.

Graves<sup>2</sup> in 1835 again wrote of this disease, reporting three cases. The nervous symptoms, tachycardia, exophthalmos and palpitation were well described. In these case reports there was no evidence favoring organic or structural cardiac disease.

Basedow<sup>3</sup> next wrote of the goiter syndrome in 1840. His first patient was a woman with exophthalmic goiter complicated by acute articular rheumatism, malaria and two pregnancies. She was treated with iodine and digitalis. The second patient also had acute articular rheumatism and congestive heart failure with edema and with exophthalmic goiter. The third case was also exophthalmic goiter, which the author states presented a "carditis" or "aortitis." A fourth case of exophthalmos was described in which iodine was used by intunction. Basedow felt that during pregnancies improvement was noted in two of the cases.

Stokes<sup>4</sup> in 1854 wrote of goiter and discussed Parry's and Graves' case reports. He mentioned two of Parry's cases, saying "the thyroid swelling evidently followed a long existing cardiac disease." He concludes his discourse with a series of conclusions, the last of which is "that the essence of the disease appears to consist in a functional disturbance of the heart, which may be followed by organic change."

Trousseau<sup>5</sup> in 1856 wrote as follows: "I must add that valvular disease was present in some of Stokes'

<sup>2</sup> Simpson W M. Tumor Thrombosis of Inferior Vena Cava. *Ann Clin Med* 3: 29 (July) 1924.

<sup>3</sup> Katz G. Eine neue Methode zum Nachweis des Verschlusses der Vena Cava inferior. *München med Wchnschr* 79: 1676 (Oct 14) 1932.

<sup>4</sup> Winternitz M, Deutsch J and Brull Z. Eine klinische branch byr Bestimmungsmethode der Blutumlaufzeit mittels Decholinjektion (kurze Mitteilung). *Med Klin* 27: 986 (July 5) 1931.

<sup>5</sup> Tarr L, Oppenheimer B S and Sager R V. Circulation Time in Various Clinical Conditions Determined by Use of Sodium Dehydrocholate. *Am Heart J* 5: 766 (Aug) 1933.

<sup>6</sup> Fishberg A M, Hitzig W M and King F H. Measurement of Circulation Time with Saccharin. *Proc Soc Exper Biol & Med* 30: 651 (Feb) 1933.

<sup>7</sup> Hitzig W M. Measurement of Circulation Time from Antecubital Veins to Pulmonary Capillaries. *Proc Soc Exper Biol & Med* 31: 935 (May) 1934.

<sup>8</sup> Allen E V and Barker N W. Roentgenologic Visualization of Veins of Extremities. Preliminary Description of Method. *Proc Staff Meet Mayo Clin* 9: 71 (Jan 31) 1934.

<sup>9</sup> de Takats Ceza. Personal communication to the authors.

<sup>1</sup> Parry Caleb. Collections from the Unpublished Writings of the Late Caleb H Parry M.D. London.

<sup>2</sup> Graves R J. Clinical Lectures in the Practice of Medicine. London: New Sydenham Society, 1884.

<sup>3</sup> von Basedow Karl. Exophthalmos Due to Hypertrophy of the Cellular Tissues of the Orbit. *Wchnschr f ges Heilk* 6: 197-204 1840.

<sup>4</sup> Stokes William. The Diseases of the Heart and Aorta. Dublin 1854.

<sup>5</sup> Trousseau Armand. Clinical Medicine. New Sydenham Society 1868.



cases, although he already saw that this was not the rule and he therefore described separately exophthalmic cachexia complicated by organic disease of the heart when treating of the disease. This clinical division should, I think, be retained, because, although exophthalmic goiter is not in my opinion, attended with dilatation of the cavities or alteration of the valves of the heart yet such lesions may coexist with it and may perhaps have been instrumental in bringing it on.

The patient's previous history and the presence of signs indicating organic lesions will enable the practitioner to ascribe each disease its proper share in the production of the cardiac condition." He further states that, in his opinion, hypertrophy does not result from exophthalmic goiter but a state of enlargement may develop, which he compares to the change occurring in the heart in pregnancy.

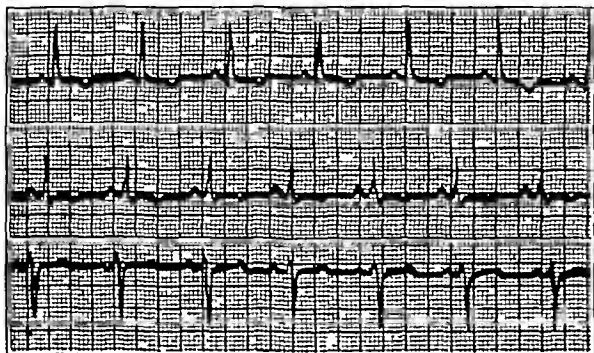


Fig 1—Left axis deviation in hypertensive vascular disease

In the century following Parry's original description, innumerable reports have been written on the subject of the cardiac status in thyrotoxicosis, and the subject still remains a very controversial problem.

The present varied concept of this question is typified by the data presented at the meeting of the American Heart Association held in New Orleans May 12, 1932, when a symposium was given on thyroid disease. The papers presented at this meeting came from divergent geographic sources in the United States and mainly

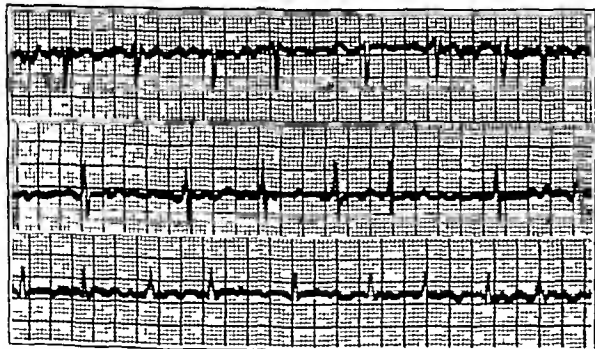


Fig 2—Right axis deviation in cor pulmonale

from internists interested in the study of heart disease rather than surgeons to whom the profession is indebted for a great number of reports on the subject of disease of the thyroid. It is of interest to note that there are two schools of opinion concerning the effect of thyroid disease on the heart. One group apparently believes that the thyroid has no effect on the cardiovascular system except to increase the metabolic activity while

the other is inclined to believe that the thyrotoxic disease causes myocardial damage, cardiac hypertrophy and change in the weight of the heart at autopsy and produces various clinical cardiac manifestations. In

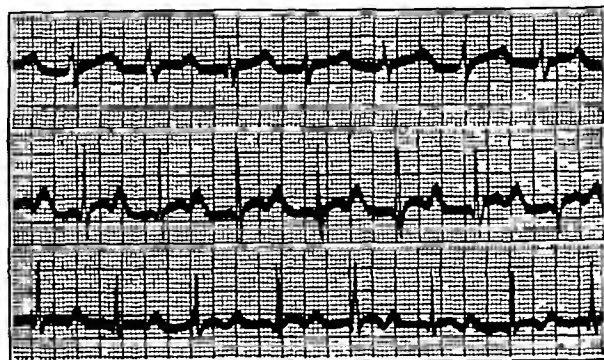


Fig 3—Prolonged auriculoventricular conduction. First degree heart block in acute rheumatic carditis

some of the reports mention is made that thyrotoxicosis and structural heart disease coexist in the same patient.

Weller and his associates,<sup>6</sup> in reporting the histopathological changes of the heart in thyroid disease, say "Morphological study of thirty-five patients with exophthalmic goiter showed, with but few exceptions, no gross or microscopical changes not equally represented in a carefully matched control series." They quote several authors whose observations are in accord with

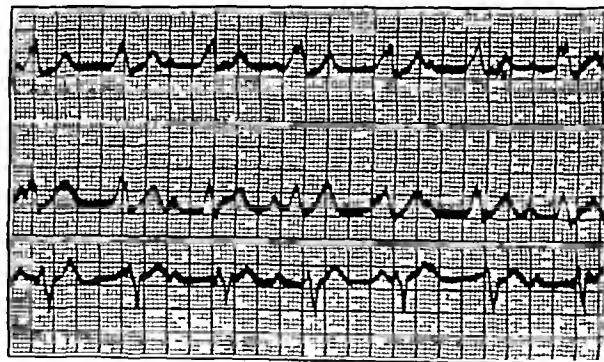


Fig 4—Incomplete left bundle branch block and complete auriculoventricular dissociation in acute rheumatic carditis

their own and a number of other observers including Wilson,<sup>7</sup> Fabr,<sup>8</sup> Ceelen,<sup>9</sup> and Kerr and Rusk,<sup>10</sup> who have demonstrated definite histopathologic lesions.

Rake and McEachern<sup>11</sup> reported that "many authors testify to the fact that when congestive heart failure appears in hyperthyroidism there is usually some other organic factor, rheumatic carditis, syphilis or the like, which tends to lower the cardiac reserve."

Burnett and Durbin<sup>12</sup> made a study of 148 cases of toxic goiter in the Colorado area. They found that

6. Weller, C. V., Wanstrom, R. C., Cordon, H., and Bugher, J. C. Cardiac Histopathology in Thyroid Disease. Preliminary Report. *Am Heart J* 18 (Oct.) 1932.

7. Wilson, J. D. Note on the Pathology of Hearts from cases described by Drs. Willius and Boothby. *Tr A Am Physiol* 38: 144, 1923.

8. Fabr, T. Histologische Befunde am Kropfherzen. *Zentralbl f allg Path u 17th Anat* 27: 1, 1916.

9. Ceelen, W. Ueber Herzerkrankungen in fruhen Kindersalter. *Berl Klin Wchnschr* 57: 213, 1920.

10. Kerr, W. I., and Rusk, C. Y. Acute Yellow Atrophy Associated with Hyperthyroidism. *M Clin North America* 6: 445 (Sept.) 1922.

11. Rake, C. Coffey, and McEachern, Donald. A Study of the Heart in Hyperthyroidism. *Am Heart J* 8: 22 (Oct.) 1932.

12. Burnett, C. T., and Durbin, Edgar. The Signs and Symptoms of Heart Changes in Toxic Goiter. *Am Heart J* 8: 29 (Oct.) 1932.

46 per cent of their patients either were "unimproved or had doubtful improvement after operation" Six of their patients are listed as having rheumatic carditis They write "We found definite electrocardiographic evidence of myocardial damage in addition to the disturbances in rhythm in a sufficient number of cases to warrant the conclusion that myocardial damage does occur in toxic goiter"

Lev and Hamburger<sup>17</sup> reported a study on angina pectoris in hyperthyroidism They say "We do not feel that angina pectoris in hyperthyroidism represents a separate entity due to any specific effects of the thyroid gland but rather that in these hearts there is already some underlying groundwork for the occurrence of anginal heart pains in the presence of hyperthyroidism"



Fig. 5—Rheumatic mitral stenosis as shown in a 2 meter roentgen study

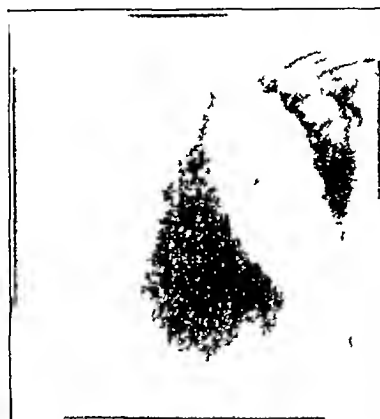


Fig. 6—Hypertensive heart with left ventricular hypertrophy as shown in a 2 meter roentgen study

Jones, Seabrook and Menne<sup>13</sup> reported a series of goiter cases in the Pacific Northwest from the standpoint of the heart and thyrotoxic disease They say "The presence of a related cardiac syphilis, a rheumatic heart lesion or a cardiovascular hypertensive disease may influence the occurrence of fibrillation and failure, but such diseases mask rather than clarify the question as to the cause of the peculiar toxic type of heart which most clinicians of experience are agreed are not duplicated by other toxic agents"

Andrus<sup>14</sup> of Baltimore presented a series of 200 cases of hyperthyroidism He stated that other preexisting factors such as hypertension, arteriosclerosis and rarely syphilis, increased the incidence of congestive heart failure

Read<sup>15</sup> in California reported on the cardiac status following thyroidectomy He stated that inherent cardiac valvular disease may be hastened in its development by added work placed on the heart in thyrotoxicosis He also wrote "In summary, it may be said that these patients who, from the duration and intensity of their thyroid disease, might be expected to show the most characteristic and extreme cardiac damage are singularly free from evidence thereof although they average 45 years of age"

Kepler and Barnes<sup>16</sup> of Rochester, Minn., studied a series of 178 fatal cases of hyperthyroidism, of which 49 per cent were found to present structural heart disease

Other representatives of this assembly were Yater,<sup>18</sup> Lerman and Means,<sup>19</sup> and Menne and his associates.<sup>20</sup> Barker and his co-workers<sup>21</sup> reported a 15 per cent incidence of auricular fibrillation in thyrotoxicosis Anderson<sup>2</sup> of Cleveland reported an incidence of from 6 to 9 per cent

A somewhat different point of view of thyrotoxic-cardiac disease has been taken by Eggleston<sup>23</sup> in his recent report of patients with thyrotoxicosis Four classifications were made

- 1 Thyrotoxicosis with structurally normal heart
- 2 Thyrotoxicosis with rheumatic heart disease
- 3 Thyrotoxicosis with arteriosclerosis or hypertensive heart disease
- 4 "Masked" hyperthyroidism

Lahey,<sup>24</sup> who with his associates has been interested in this problem, makes the following statement as a result of their studies

Additional evidence that there is no such thing as a true thyroid heart is the fact that one does not see cardiac failure associated with intense degrees of hyperthyroidism even up to states which result fatally, provided there is no associated



Fig. 7—Syphilitic aortic regurgitation Aortic dilatation and left ventricular hypertrophy



Fig. 8—Cor pulmonale due to syphilitic pulmonary arteritis

cardiac damage We have seen a number of young people die of acute hyperthyroidism and yet at no time in these patients with undamaged hearts were there evidences of cardiac failure

- 17 Lev M W and Hamburger W W Studies in Thyroid Heart Disease II Angina Pectoris and Hyperthyroidism Am Heart J 8 112 (Oct) 1932
- 18 Yater W M The Mechanism of Adjustment of the Circulation in Hyperthyroidism (Thyrotoxicosis) Am Heart J 8 1 (Oct) 1932
- 19 Lerman J and Means J H Cardiovascular Symptomatology in Exophthalmic Goiter Am Heart J 8 55 (Oct) 1932
- 20 Menne F R Keane R H Henry R F and Jones N W The Heart in Hyperthyroidism An Experimental Study Am Heart J 8 75 (Oct) 1932
- 21 Barker P S Bohning A L and Wilson F N Auricular Fibrillation in Graves Disease Am Heart J 8 121 (Oct) 1932
- 22 Anderson J P The Incidence of Auricular Fibrillation and Results of Quinidine Therapy Am Heart J 8 128 (Oct) 1932
- 23 Eggleston Cary The Medical Treatment of the Thyrocardiac Am J Med Sc 187 737 (June) 1934
- 24 Lahey F H Thyroid Operations in Cardiac Disease S Clin North America 14 1225 (Oct) 1934

13 Jones N W Seabrook D B and Menne F R A Clinical Study of Goiter in the Pacific Northwest with Special Reference to the State of the Heart Am Heart J 8 41 (Oct) 1932

14 Andrus E C The Heart in Hyperthyroidism A Clinical and Experimental Study Am Heart J 8 66 (Oct) 1932

15 Read J N Cardiac Status After Prolonged Thyrotoxicosis Am Heart J 8 84 (Oct) 1932

16 Kepler E J and Barnes Arlie Congestive Heart Failure and Hypertrophy in Hyperthyroidism A Clinical and Pathological Study of 178 Fatal Cases Am J Heart J 8 102 (Oct) 1932

Further evidence that there is no true thyroid heart is available in the fact that even when patients have had hyperthyroidism over a long period of time if they are relieved of their hyperthyroidism their cardiac capacity is then just as great as it was before their hyperthyroidism appeared. In other words, there is no permanent cardiac damage done even though intense hyperthyroidism has existed over a considerable period of time.

Many other reports might be quoted from the literature, similar in character to those cited concerning the cardiac status in hyperthyroidism.

The criteria for diagnosis of thyroid heart due to adenoma with hyperthyroidism or exophthalmic goiter, as listed by the American Heart Association,<sup>25</sup> are as follows: "1. Evidence of hyperthyroidism and enlargement of the heart. 2. Evidence of hyperthyroidism associated with abnormal cardiac function such as paroxysmal or permanent auricular fibrillation."

A study of the cardiac status of any individual with hyperthyroidism must obviously include the effect of the thyrotoxicosis on the heart and blood vessels and due consideration of all other etiologic factors that may affect the cardiovascular system. Thyrotoxicosis may act subsequently or coincidentally with any other known etiologic factor.

A committee of the American Heart Association has published a monograph<sup>26</sup> describing the various etiologic factors and the pathologic changes in the muscle, valves, pericardium and blood vessels. Several studies of these etiologic factors causing heart trouble show that rheumatic infection, hypertension, arteriosclerosis, syphilis, thyrotoxicosis, pulmonary disease, congenital causes, toxins and bacterial entities are the cause of most cardiovascular disease.<sup>26</sup> Each of these etiologic factors produces distinct structural or anatomic deformities that are recognizable with sufficient clinical study, and objective proof may usually be obtained through the laboratory with fluoroscopic and x-ray studies and with the electrocardiogram.

In the past the general term "organic heart disease," embracing several specific disease entities, and the popular designation "chronic myocarditis," have been indiscriminately employed both clinically and pathologically.

In the years 1926 to 1935 inclusive we have had the opportunity of studying 180 cases in which thyrotoxicosis was an etiologic factor of the cardiac problem. These cases were encountered in a private and consultation cardiac practice in a general male medical ward (No. 25) in the Cook County Hospital, and in the heart clinic at Northwestern University Medical School in the following proportions: private practice 111 cases, Northwestern Cardiac Clinic thirty-four cases, and Cook County Hospital thirty-five cases.

The method of study of these cases included a routine history, physical examination, electrocardiograms, 2-meter heart films and fluoroscopy, and routine laboratory examinations of the blood and urine and a Wassermann test as a minimum requirement. Numerous basal metabolic studies were made on each patient with sufficient clinical observation to establish correctly the

diagnosis of thyrotoxicosis. Cardiac diagnosis was established on the composite evidence obtained from the history, the physical changes and the laboratory data, particularly from the 2-meter x-ray film and the electrocardiograms. Many of the patients were studied by other physicians and we are indebted to them and to the institutions that have furnished us with their records and observations to complete our own studies.

We have found that a number of these patients have had coexisting organic heart disease such as rheumatic valvulitis, coronary disease, hypertension, cor pulmonale or syphilitic heart disease that has had a definite bearing on the clinical observations, operative risk and subsequent course of the patient.

A study of our data shows that these cases were divisible into three distinct groups: (1) thyrotoxicosis uncomplicated by structural heart disease (20.6 per cent), (2) thyrotoxicosis with organic heart disease (75.5 per cent), (3) neurocirculatory asthenia with possible thyrotoxicosis (3.8 per cent). The group with

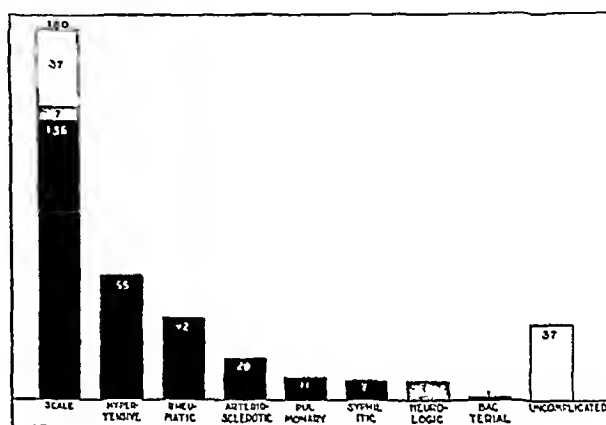


Fig. 9—Relative incidence of the various types of heart disease complicated by thyrotoxicosis.

organic heart disease and thyrotoxicosis may be further classified into definite etiologic entities. The relative incidence of the various types of heart disease that have been found associated with thyrotoxicosis is shown in figure 9. The various types of complicating heart disease will be discussed separately in detail in later parts of this paper.

#### THYROTOXICOSIS UNCOMPLICATED BY ORGANIC HEART DISEASE

Thirty-seven patients were placed in the group of thyrotoxicosis uncomplicated by organic heart disease, representing 20.6 per cent of the total. Structural change in the cardiovascular system was not excluded in these individuals on a single criterion but on the composite negative evidence obtained from the history, physical examination and laboratory studies.

In this group of thirty-seven patients twelve (32.4 per cent) showed exophthalmos and twenty-five (67.7 per cent) had an adenomatous type of goiter. The age range was from 24 to 62 years with the majority (75 per cent) under 45. Practically all of them were residents of the Chicago area for most of their lives. Fifteen had had a thyroidectomy performed, three had been treated with x-rays and one with radium, and the remaining eighteen had had only medical management.

From a historical standpoint, the antecedent medical histories were comparatively negative. A history of

<sup>25</sup> Criteria for the Classification and Diagnosis of Heart Disease, ed. 3, New York: Little and Jones Company, 1922.

<sup>26</sup> White, I. D. and Myer, M. M. The Classification of Cardiac Diagnosis with Especial Reference to Etiology. *Am. Heart J.* 1: 47 (Oct.) 1925. Viko, I. F. *Am. Heart J.* 6: 264 (Dec.) 1930. Wicks, J. and Linger, C. Etiology in Organic Heart Disease. *Am. Heart J.* 1: 446 (April) 1926. Stone, C. T. and Vanzant, E. K. *Heart Disease*, 1st ed., 1926. Seen in Southern Clinic. *J. A. M. A.* 89: 147 (Oct. 9), 1927. Chesser, A. M. *Am. Heart J.* 1: 46 (Oct.) 1931. Maher, C. C. Sittler, W. W. and Elliott, R. A. Heart Disease in the Chicago Area. A Study of the Etiologic Factors in One Thousand Cases. *J. A. M. A.* 105: 263-268 (July 27), 1935.

rheumatism, syphilis, hypertension or antecedent heart disease was elicited in none of the cases. A family history of apoplexy was present in only two cases, one patient had a childhood history of rheumatism and one patient had a history of an increase in blood pressure during a pregnancy.

Subjectively, the common cardiac symptom was palpitation and tachycardia. Symptoms of congestive failure such as cough, marked dyspnea, hemoptysis or swollen extremities, were absent. Anginal pain was not noted. Dyspnea was elicited as a symptom in only 25 per cent of these cases and was of minor degree.

From the standpoint of objective physical manifestations, the majority were essentially negative with reference to increase in size of the percussion dullness, cardiac murmurs, arrhythmias or peripheral sclerosis. Murmurs were encountered in less than 12 per cent of the entire group and these were located over the base of the heart and classified as functional.

The blood pressure records showed wide variations and a great lack of stability in the systolic readings, varying from 115 to 148 depending on the emotional status of the patient at the time the record was obtained. In the hospital environment at bed rest, consistently normal readings were secured. The diastolic readings showed a variation ranging from 58 to 85.

The orthodiagrams or 2-meter film studies never revealed cardiac hypertrophy, and the transverse width of the heart never measured more than half the width of the chest. The position and shape of the heart image varied with the physique of the individual patient.

The electrocardiograms were essentially negative. Very minor conduction deformities of the ventricular complex were encountered in less than 14 per cent of the total. Extrasystoles were infrequent. Heart block was absent in any degree. Auricular fibrillation was encountered in only one case.

Essentially, the diagnosis of the absence of structural heart disease was borne out by each phase of the cardiac examination and by the absence of subjective or objective evidence of cardiac failure.

#### HYPERTENSIVE GROUP

The criterion for the diagnosis of hypertensive vascular disease as defined by the American Heart Association<sup>25</sup> is "persistent hypertension with peripheral sclerosis and a characteristic hypertrophy of the left ventricle." The current concept of the course of hypertensive vascular disease has been described by Fishberg,<sup>27</sup> Christian<sup>28</sup> and Janeway.<sup>29</sup>

Patients with this problem pass through a period (usually measurable in years) of hypertension without symptoms. At the end stage in the majority of them congestive heart failure develops lasting from several months to a few years with death as the outcome. In a lesser number localized vascular lesions develop, frequently cerebral hemorrhage or thrombosis with that mode of death. In a few renal failure and uremia develop and death occurs in that manner. A variable number die of intercurrent complications of pneumonia, accident or other disease entities. Complications of arteriosclerosis, diabetes mellitus, urologic disease, obesity and emphysema are not uncommon.

Thyrototoxicosis and hypertensive vascular disease are syndromes that have certain symptoms and signs in common. Many of these similarities have been the subject of investigation, with considerable diversity of opinion concerning the relationship of the two disease entities. For example, Crile<sup>30</sup> states "It is quite conceivable that a relatively slight overstimulation of the vasomotor mechanisms from overactivity of the thyroid or from perverted secretion, if it persists over a long period of years, may lead to an elevation of the blood pressure or to permanent myocardial damage, which is manifested by auricular fibrillation, by paroxysmal tachycardia or in some instances by cardiac decompensation."

Fishberg<sup>27</sup> conversely states "It is not uncommon for patients with long-standing thyrototoxicosis but no true hypertension at first to develop hypertension when he or more often she, reaches middle life. However the hypertension in such individuals cannot be attributed directly to the thyrototoxicosis, for much more severe Graves' disease in the young, even though present for years does not produce elevation of the diastolic pressure."

From the standpoint of blood pressure in thyrototoxicosis, Plummer<sup>31</sup> in 1915 and Taussig<sup>32</sup> in 1916 pointed out an increase in the systolic blood pressure and also an increase in the pulse pressure. Fullerton and Harrop<sup>33</sup> disagree with this finding. Their reports show that, under basal conditions, neither the systolic pressure nor the pulse pressure is abnormal. Willis and Boothby<sup>34</sup> in 1923 divided thyrototoxicosis into two groups, the exophthalmic type and the adenomatous goiter with thyrototoxicosis. Their blood pressure studies in the latter group showed an increase in the diastolic pressure, implying this type of hyperthyroidism as a cause of hypertensive vascular disease.

The basal metabolic rate may be increased in hypertensive vascular disease and has been the subject of numerous studies such as those of Boothby and Sandiford<sup>35</sup> who found rates of from +15 per cent to -15 per cent in 89.4 per cent of 170 cases of hypertension. Riesman<sup>36</sup> in 1919 described cases of hypertension under the term of "nongoitrous thyrototoxic hypertension." Boas and Shapiro<sup>37</sup> in 1925 again studied the problem of metabolism in this type of patient. In a series of twenty-seven patients, ten showed rates above +15 per cent.

Hamburger<sup>38</sup> demonstrated that in congestive heart failure the basal metabolic rate may be elevated.

The question of cardiac enlargement and cardiac hypertrophy in thyroid disease has been a controversial subject. In the early period Stokes,<sup>4</sup> Graves and Trousseau<sup>5</sup> voiced their opinion based on examination of the heart by percussion. Today the argument is continued with the orthodiagram or the 2-meter plate, and the question remains in dispute.

30 Crile G W The Thyroid Gland Philadelphia W B Saunders Company 1923

31 Plummer Tr A Am Physicians 30 450 1915

32 Taussig A E Tr A Am Physicians 31 121 1916

33 Fullerton C W and Harrop G A Jr The Cardiac Output in Hyperthyroidism Bull Johns Hopkins Hosp 46 203 (Feb) 1930

34 Willis F A Boothby W M and Wilson L B Behavior of the Heart in Exophthalmic Goiter and Adenomatous Goiter with Hyperthyroidism Tr A Am Physicians 38 137 1923

35 Sandiford Irene and Boothby W M J Biol Chem 54 153 (Dec) 1922

36 Riesman David Hypertension in Women J A M A 73 330 (Aug) 1919

37 Boas E P and Shapiro Shepard Further Observations on Patients with Hypertension and Increased Basal Metabolic Rate Am Heart J 1 643 (June) 1926

38 Hamburger W W and Lev M W Basal Metabolism and Organic Heart Disease Am Heart J 1 240 (Dec) 1925

27 Fishberg A M Hypertension and Nephritis Philadelphia Lea & Febiger 1930

28 Christian H A in discussion on symposium on blood pressure J A M A 93 1 (Sept 18) 1926

29 Janeway T C A Clinical Study of Hypertensive Cardiovascular Disease Arch Int Med 12 750 (Dec) 1915

Simonds and Brandes<sup>39</sup> reviewed the status of this question in animal studies. They produced experimental hyperthyroidism in dogs and reported the development of cardiac hypertrophy.

Hurxthal<sup>40</sup> from clinical studies in 1930 reported "If hyperthyroidism causes cardiac enlargement or hypertrophy and dilatation it is slight." Hurxthal<sup>41</sup> in 1932 again reported "Slight to moderate degrees of ventricular hypertrophy were found in cases of long duration, but gross cardiac enlargement was usually associated with coincident cardiovascular disease."

Since these two syndromes present certain symptoms and signs in common the diagnosis of either may present difficulties, and the possibility of error is worthy of consideration. The clinical evaluation of patients in whom both these syndromes may be present is even more complicated. The differentiation of these entities is rendered less problematic if the patient is under observation over a protracted period of time, as for months or years, with repeated observation of the hypertension and vascular state and repeated study of the metabolism. Consideration of either as a syndrome rather than from isolated symptoms also lessens the frequency of error.

In fifty-five of our patients who were placed in this group we found sufficient evidence to justify the diagnosis of both hypertensive vascular disease and thyrotoxicosis. Citation of a few cases best describes this combination.

**CASE 1**—M. C., an Italian widow aged 56 died in 1934. Her family background was medically negative and her only childhood illness was scarlet fever. She married at the age of 18 and went through three pregnancies. No blood pressure records were obtainable of this period and no definite evidence could be secured concerning the duration of her hypertensive problem. She had an adenomatous goiter, of which she was unaware prior to 1932.

During 1932-1934 she presented the characteristic syndrome of hypertensive vascular disease complicated by a variable degree of congestive heart failure. The systolic pressure ranged between 180 and 220 and the diastolic level from 100 to 120. There was a moderate grade of peripheral sclerosis, aortic sclerosis and a hypertrophied left ventricle (2-meter plate). An electrocardiogram showed a left bundle branch block. The course was punctuated by repeated attacks of acute pulmonary edema. The basal metabolic rate level was observed to be within normal limits on repeated observations.

In June 1934 the patient was in an automobile accident resulting in a minor scalp injury. Within a month the clinical picture showed a dramatic change. A rapid weight loss of 25 pounds (11.3 Kg.) developed with extreme nervousness, emotionism, tremor, insomnia and intolerance to heat. The basal metabolic level rose to +50 per cent.

Surgical intervention and other management were refused and within twelve weeks of the onset of the thyrotoxic state she died during an attack of acute pulmonary edema.

There appeared to be reasonable evidence in this case to justify the onset of thyrotoxicosis superimposed on a hypertensive vascular problem.

**CASE 2**—L. C., a housewife died at 57 years. Her father and mother died of apoplexy. In childhood she had measles, diphtheria, scarlet fever and pertussis. She married at the age of 29 and was pregnant on one occasion but miscarried at three months.

In 1914 when she was 37 a laparotomy was performed for a pelvic infection complicated by pneumonia and she was an invalid for nine months. The blood pressure was within normal limits during this time. An increase in the blood pressure was

discovered after the operation but the exact date is not known. The systolic pressure varied from 150 to 170 and the diastolic from 90 to 100. Her course from 1914 to 1926 was asymptomatic with reference to the hypertension.

In 1926 a gastro-intestinal problem developed with diarrhea and loss of weight, without a definite diagnosis being established.

In 1928 cardiac symptoms became prominent with the onset of auricular fibrillation and congestive heart failure.

In 1929 she was discovered to have a substernal adenomatous goiter with a maximum basal metabolic rate of plus 45 per cent. She had a thyroidectomy in 1930. The auricular fibrillation remained after operation but cardiac compensation was readily secured and her course was uneventful for over a year.

In 1931 a cerebral thrombosis developed, which she survived with a mild residual spastic paraplegia.

During 1932 and 1933 she suffered from repeated attacks of renal stone and died with a complicating cerebral thrombosis, at the age of 57.

This patient appeared to have a hypertensive vascular disease of some years' duration with a superimposed thyrotoxicosis relieved by operation.

The life histories of the patients in this group vary in detail but are essentially similar.

The diagnosis of the hypertensive vascular syndrome was dependent on the composite evidence obtained in each case. This consisted essentially of the history, repeated blood pressure records, the cardiac physical changes, the peripheral vascular status, the x-ray screen, film studies and electrocardiograms.

In the group of fifty-five patients with a diagnosis of hypertensive vascular disease and thyrotoxicosis forty-one were women and fourteen were men. The age range was from 27 to 72 years, with 80 per cent of the patients between the ages of 40 and 65. Nine patients had an exophthalmic type of goiter and forty-six the adenomatous type. Twenty-six of the patients of this group were operated on and twenty-nine were not. Four sustained repeated operations for recurrence of thyrotoxicosis.

From a historical standpoint, 35 per cent of the cases presented a familial history of hypertensive vascular disease or its complications. Only 10 per cent of the group were able to give information concerning their former blood pressure records. One patient had a definite record concerning an acute and chronic nephritic problem one year prior to the onset of the thyrotoxicosis.

Symptomatically, this group of patients complained of a wide variety of symptoms. Thirty-two of the fifty-five patients showed cardiac symptoms of congestive heart failure including dyspnea, orthopnea, cough and edema of the ankles. Two of the group showed symptoms referable to cerebral vascular disorder and two were in the uremic group. Seventeen of the patients were in the asymptomatic period of their hypertensive vascular disease and were free of symptoms except for palpitation and tachycardia.

The conditions encountered in physical examination were characteristic of hypertensive vascular disease. All the patients in this group showed sclerosis of the peripheral vessels of varying grade manifested in the brachial or retinal arteries. Basal systolic murmurs with accentuated aortic closure were an almost constant finding. In the group showing congestive failure diminished heart tones were often present. Gallop rhythm during the period of thyrotoxicosis was encountered in one tenth of the patients. Accurate percussion of the cardiac width was seldom possible.

The blood pressure records were consistently high ranging from 170 to 260 systolic and from 90 to 150

<sup>39</sup> Simonds, J. P. and Brandes, W. W. The Size of the Heart in Experimental Hyperthyroidism. *Arch. Int. Med.* 17: 40 (April) 1919.

<sup>40</sup> Hurxthal, I. M., Menard, O. J. and Brandes, W. W. The Size of the Heart in Goiter. *Am. J. Med. Sci.* 140: 77 (Dec.) 1910.

<sup>41</sup> Menard, O. J. and Hurxthal, I. M. Cardiac Dilatation in Toxic Goiter. *Am. Heart J.* 13: 135 (Oct.) 1912.



diastolic. Occasionally in those patients with congestive heart failure with marked edema exceptionally low systolic readings were recorded. In one patient the systolic pressure during a period of congestive heart failure was found to be 110 and several months after thyroidectomy it reached a systolic level of 200.

In electrocardiographic studies, forty-one showed the characteristic left axis deviation of persistent hypertension. Twelve patients showed a normal axis deviation. Left bundle branch block was encountered in two cases and partial heart block with prolongation of the auriculoventricular conduction time to 0.28 second was encountered in one case. Seventy per cent of the curves showed conduction deformities of the ventricular complex, indicative of myocardial damage. Thirteen cases were in the auricular fibrillation group, one patient showed a persistent auricular flutter and one case was found to present a paroxysmal tachycardia of auriculoventricular nodal origin. One patient in this group showed moderate right axis deviation with conduction deformity of the ventricular complex. This patient had a marked emphysema and an associated pulmonary type of heart disease.

Fluoroscopic and roentgenographic studies (2-meter films) showed enlargement or hypertrophy of the left ventricle in all cases. In those patients with congestive heart failure the hypertrophy was most marked. Widening of the aortic shadow was present in more than 50 per cent of the cases.

Six patients in this group have suffered a cerebral thrombosis within two years following thyroidectomy. It is possible that this figure would be higher than this if all cases had been followed to date.

In summary, the fifty-five patients have been classified with the combination of thyrotoxicosis and hypertensive vascular disease manifested not only by elevation of the blood pressure but also by characteristic physical changes, electrocardiographic studies and x-ray studies. In 60 per cent of this hypertensive group the advent of congestive heart failure appeared to be a result of the superimposed thyrotoxicosis.

#### RHEUMATIC HEART DISEASE

Rheumatic heart disease is currently looked on as an infectious process with the Aschoff nodule as the pathologic unit, involving the valves, myocardium and pericardium. The valvular involvement is most often the mitral, and less commonly the aortic, but sometimes both valves are involved. The mechanical narrowing of the mitral orifice is productive of the left auricular and right ventricular hypertrophy with a characteristic x-ray image. Aortic stenosis is associated with left ventricular hypertrophy.

There is increasing evidence to prove that rheumatic heart disease is often a subacute low grade infection rather than a chronic healed process, as has been considered heretofore. Rothschild, Kugel and Gross,<sup>42</sup> in studying 161 autopsies in rheumatic heart disease, found evidence of active infection in 106 cases. There is also evidence which indicates that the "rheumatic" infection may affect almost any tissue of the body. This point of view places more stress on the infectious element in the myocardium and other viscera than on the mechanical defects of the valves. Rheumatic myocarditis may injure the conduction system, producing varying degrees of heart block.

The coexistence of thyrotoxicosis and rheumatic carditis is recorded in the early case reports of Parry,<sup>1</sup> Basedow,<sup>3</sup> Stokes<sup>4</sup> and Trousseau.<sup>5</sup> Numerous authors including Flint,<sup>43</sup> Paul,<sup>44</sup> Hayden,<sup>45</sup> Broadbent<sup>46</sup> and Fothergill,<sup>47</sup> through the succeeding years have referred to these reports but added no new information.

From a clinical standpoint many of the modern writers have entirely neglected this relationship. The subject has been discussed at some length by Llewellyn<sup>48</sup> who points out that "the incidence of mortality from acute and chronic rheumatism is markedly higher in districts where goiter is endemic." It is his opinion that arthritis may result from the hypothyroid state but he also notes the occurrence of rheumatic infection in hyperthyroidism.

In the pathologic studies one frequently finds references to the coexistence of the two entities, as those of Weller,<sup>6</sup> Lewis,<sup>49</sup> Kepler and Barnes<sup>16</sup>. Cabot,<sup>50</sup> however, reported a single case in 1929 of the coexistence of thyrotoxicosis and rheumatic heart disease as the only case of this type he had ever encountered in his wide experience in the autopsy room.

In our series the coexistence of rheumatic heart disease and thyrotoxicosis was encountered in forty-two cases, or 23.3 per cent of the total. A few characteristic cases best present the combination.

CASE 3—G. J., a single woman, aged 35, a housewife, had scarlet fever when she was 8 years of age, and was told during adolescence that she had a mitral stenosis. She had a large goiter, first noted when she was 13 years old. During youth and early adult life she was examined by several physicians corroborating the presence of the valvular lesion, and she was considered to have a nontoxic goiter. This was corroborated by normal metabolic studies.

At the age of 33 she became pregnant and was delivered uneventfully at term. Her metabolic rate during the pregnancy was plus 10 per cent and plus 12 per cent. During the first month post partum she lost 15 pounds (6.8 Kg.), became nervous and irritable, and tremor and tachycardia developed. The basal metabolic rate reached a maximum of plus 34 per cent. There was a presystolic-systolic murmur and thrill at the apex, a typical mitral heart on roentgen examination and a characteristic right axis deviation in the electrocardiogram. No break in compensation was observed.

The patient was successfully operated on (thyroidectomy) and pursued an uneventful postoperative course except for transient attack of paroxysmal auricular fibrillation successfully controlled with quinidine and digitalis. The patient gained 20 pounds (9 Kg.) and since the operation has been active without disability from the rheumatic mitral stenosis.

The coexistence of two diseases in this patient was quite distinct.

CASE 4—A youth, unmarried, aged 19 years, a laborer, entered the Cook County Hospital with a typical clinical picture of exophthalmic goiter of two months' duration. His antecedent cardiac history was negative except for an illness at the age of 12 years of several weeks' duration, attributed to "kidney inflammation."

A moderate grade pharyngitis protracted low grade temperature and increased tachycardia developed. Over a period of three months aortic stenosis developed and also a mitral

43 Flint Austin Diseases of the Heart ed 1 1859

44 Paul Constantin Diagnostic et traitement des maladies du coeur Paris 1887

45 Hayden Thomas Diseases of the Heart and of the Aorta Dublin 1875

46 Broadbent W. H. Heart Disease with Special Reference to Prognosis and Treatment New York William Wood & Co. 1900

47 Fothergill J. M. The Heart and Its Diseases with Their Treatment Including the Gouty Heart Philadelphia Lindsay and Blakiston 1879

48 Llewellyn J. J. Aspects of Rheumatism and Gout London 1917

49 Lewis William Hyperthyroidism and Associated Pathology J. N. S. 181 65 (Jan.) 1931

50 Cabot R. C. Cabot Case Records Coexistence of Thyrotoxicosis and Rheumatic Heart Disease New England J. Med. 201 1036 (Nov. 21) 1929

42 Rothschild M. A. Kugel M. A. and Gross L. Incidence and Significance of Active Infection in Cases of Rheumatic Cardiovascular Disease During the Various Age Periods Am. Heart J. 9 386 (June) 1934



lesion. The heart area on roentgen examination showed an increase in size and the right and left ventricles had become more prominent.

Dropped beats were discovered and electrocardiograms substantiated the clinical observation. The degree of block varied from a prolongation of the PR interval to complete auriculo-ventricular dissociation.

The coexistence of acute rheumatic carditis (valvulitis and myocarditis with heart block) and thyrotoxicosis in this patient presents a somewhat more serious type of the combination. Three other patients in the series presented similar pictures.

Of the forty-two patients in this series who were found to have rheumatic valvular disease complicated by thyrotoxicosis, women preponderated over men in a ratio of 29:13. Seventy-five per cent were under 45 years of age with an age range of from 20 to 65 years. Thirty-six cases were classified as thyroid adenomas and six were exophthalmic goiters. Twenty patients were operated on, four were treated by x-rays, and eighteen were not operated on.

A history of rheumatism, chorea or known valvular disease prior to the advent of thyrotoxicosis was obtained in 60 per cent of patients in this group.

From the standpoint of symptomatology seventeen patients, or approximately 40 per cent, presented complaints characteristic of congestive heart failure with marked dyspnea and gross edema. One patient's symptomatology was that of dry pericarditis with marked precordial pain. Seven patients of this group presented symptoms of active rheumatic fever.

The physical changes in this group of patients were dependent on the particular valvular lesion encountered. Seven presented changes of combined lesions of the aortic and mitral orifices. Thirty-four patients were classified as having uncomplicated mitral stenosis and one patient (aged 65) had a definite dry pericarditis with a friction rub and active joint involvement. The fluoroscopic and roentgenographic studies of these patients showed characteristic cardiac images dependent on the valvular lesion. Cardiac hypertrophy was most marked in those patients in whom congestive heart failure was a complicating factor.

In the electrocardiographic studies, right axis deviation of marked degree was present in only one sixth of the mitral cases. Auricular fibrillation was present in thirteen of the forty-two cases. Four patients were found to have variable degrees of heart block. Two patients were found to have transient complete auriculo-ventricular dissociation and one of these was further complicated by a transient left bundle branch block. Both of these patients showed dropped beats and prolongation of the conduction time. Two patients showed permanent prolongation of the auriculo-ventricular conduction time. Wedd<sup>51</sup> reported a case of complete heart block during an attack of acute rheumatic fever in a patient who had been operated on the same year for exophthalmic goiter. The electrocardiogram taken during the period of thyrotoxicosis was reported as normal and also the cardiac examination was reported as giving normal results. Davis and Smith<sup>52</sup> reported six cases of complete heart block in thyrotoxicosis complicated by acute infections not classified as rheumatic.

The blood pressure records were usually not of diagnostic importance.

In summary, forty-two cases were classified in the rheumatic valvular group with superimposed thyrotoxicosis. Sixty per cent were complicated by congestive heart failure precipitated by the thyrotoxicosis. The historical data, the characteristic murmurs and the x-ray studies were the pertinent factors in the diagnosis of the rheumatic heart disease.

#### ARTERIOSCLEROTIC GROUP

Arteriosclerotic heart disease implies coronary sclerosis locally, usually associated with generalized arteriosclerosis. Coronary thrombosis and myocardial infarction often complicate the process. Symptomatically, angina pectoris is a cardinal symptom. This type of heart disease usually occurs in the latter years of life. Levine<sup>53</sup> gives the average age in a series of 145 cases of coronary thrombosis as 57.8 years. Complicating disease entities of diabetes mellitus, prostatic hypertrophy and hypertension often are present.

Mora and Greene<sup>54</sup> reported a series of cases of thyrotoxicosis in older persons. They described the cardiac symptomatology and manifestations but did not classify the cases as to etiologic factors. Angina was not listed as a cardiac symptom in their study.

Lev and Hamburger<sup>55</sup> in 1928 reported six cases of angina pectoris and hyperthyroidism. One included an autopsy report with definite coronary disease.

Levine and Walker<sup>56</sup> in 1929 discussed the problem of so-called latent hyperthyroidism masked as heart disease, in association with angina pectoris. It was pointed out that in those with typical anginal attacks proper treatment of the latent hyperthyroidism resulted in a great reduction in the number of attacks, if not complete relief from symptoms.

White<sup>57</sup> points out that an extra demand on the coronary circulation in thyrotoxicosis may be sufficient to provoke angina pectoris in a patient with defective coronary arteries. Case 5 is characteristic in this group.

CASE 5—C. F., a widow aged 65 in childhood had had measles and a mild 'inflammatory rheumatism'. She had an infected finger amputated in adolescence. She was married at 20 and gave birth to eleven children. At the age of 55 she went through the menopause.

At the age of 56 the syndrome of thyrotoxicosis developed complicated with dyspnea, precordial distress and pain in the left arm on exertion. Attacks of cardiac irregularity developed which were found to be paroxysmal auricular fibrillation. She had a generalized arteriosclerosis marked in the radial and brachial vessels and manifest in the retinal arteries. The 2-meter plate showed sclerosis of the aorta. The electrocardiogram showed mild left axis deviation and mild conduction deformity of the ventricular complex.

At 57 she was successfully operated on. She regained her weight and the cardiac symptoms disappeared except for rare attacks of paroxysmal fibrillation.

From the age of 57 to her present age of 65 her medical problems have been concerned with a mild hydronephrosis and pyelitis with secondary anemia. On exertion during her periods of anemia she has mild anginal pain.

Of the twenty patients classified in this group twelve were women and eight were men. The age range was from 54 to 75. All but one were under 70.

<sup>51</sup> Wedd, A. M. Clifton M. Bull. 18, 63, 19, 2.

<sup>52</sup> Davis, C. V. and Smith, H. I. Complete Heart Block in Hyperthyroidism Following Acute Infection. A Report of Six Cases with Necropsy Findings in One Case. Am. Heart J. 9, 81-89 (Oct.) 1933.

<sup>53</sup> Levine, Samuel. Coronary Thrombosis. Its Various Clinical Features. Baltimore, Williams & Wilkins Company, 1929.

<sup>54</sup> Mora, J. M. and Greene, F. I. Thyroidectomy for Thyrotoxicosis in Older People. Am. J. M. Sc. 181, 74 (Jan.) 1931.

<sup>55</sup> Lev, M. W. and Hamburger, W. W. The Association of Angina Pectoris and Hyperthyroidism. Am. Heart J. 3, 72 (Aug.) 1928.

<sup>56</sup> Levine, S. A. and Walker, G. L. New England J. Med. 201, 1021 (Nov. 21) 1929.

<sup>57</sup> White, Paul. Heart Disease. New York, Macmillan Company, 1922.

Nineteen had thyrotoxic adenomas and one had an exophthalmic goiter. Nine were operated on, two were treated by x-rays, eight were not operated on and one was treated with radium.

Symptomatically, angina was present in all twenty patients. Eight of the group manifested symptoms of congestive heart failure with gross edema.

The cardiac examinations in this group frequently showed diminished intensity of the heart tones, in six apical systolic murmurs were present. All this group showed well marked peripheral arteriosclerosis. In 50 per cent of the group there was a concomitant moderate grade hypertension. One patient had an inactive syphilis, two had moderate grades of emphysema. In the electrocardiographic studies, six showed auricular fibrillation and one had a permanent, complete auriculoventricular dissociation. All had some degree of conduction deformity of the ventricular complex. Three of the patients in this group are known to have died of acute coronary thrombosis and one, who had a coronary thrombosis, subsequently died of cerebral thrombosis.

In summary, twenty patients were classified in the arteriosclerosis group with the associated syndrome of thyrotoxicosis. The outstanding features were the age incidence in the latter decades of life, characteristic anginal pain and peripheral sclerosis. The electrocardiograms and the roentgenograms were helpful in diagnosis.

#### PULMONARY HEART DISEASE

Pulmonary heart disease has been described under a number of terms such as the emphysema heart,<sup>58</sup> pulmonary heart,<sup>59</sup> eccentric right ventricular hypertrophy,<sup>60</sup> pulmonary arteriosclerosis,<sup>61</sup> Ayerza's disease<sup>62</sup> and pulmonary hypertension.<sup>63</sup> Recently the term "cor pulmonale" has been introduced.

Essentially, the pathologic changes consist of right ventricular hypertrophy, pulmonary arteriosclerosis, and pathologic damage to the lung parenchyma or bony thorax usually associated with emphysema. Etiologically, these pathologic changes arise from chronic tuberculosis, asthma plus bronchial infection, chronic bronchiectasis, lung carcinoma, silicosis, deformities of the thorax following trauma, rachitis, poliomyelitis or Pott's disease. Symptomatically the patient presents the signs and symptoms of the primary lung problem plus cyanosis, tachycardia, polycythemia, right ventricular enlargement and eventually congestive heart failure as the right ventricle dilates.

The damage to the lung parenchyma or the deformity of the bony thorax diminishes the capacity of the oxygenating system. Right ventricular hypertrophy and hypertension in the pulmonary circuit result to meet this need.

We have encountered the combination of cor pulmonale and thyrotoxicosis in eleven cases. Case 6 is characteristic of this group and is presented with autopsy.

CASE 6—J. L., a laborer, died at the age of 46. The antecedent medical history was essentially negative except for a 'chronic bronchitis,' which had been present since childhood.

At the age of 45, nervousness, palpitation, fatigue, tachycardia and loss of weight developed, with a basal metabolic rate which reached a maximum of plus 75 per cent. During his period of hospitalization, enlargement of the liver, ascites and gross edema of the ankles developed.

The 2-meter heart plate showed right ventricular hypertrophy with marked increase of the connective tissue throughout the lung parenchyma and emphysema. The electrocardiogram presented marked right axis deviation with auricular fibrillation. He was refractory to iodine and died with a complicating problem of gastric hemorrhage.

Autopsy revealed a typical pulmonary type of heart with gross eccentric hypertrophy of the right ventricle. There was an associated pulmonary arteriosclerosis, bronchiectasis and emphysema of the lungs. The gastric hemorrhage was the result of superficial ulceration of the gastric mucosa.

CASE 7—M. S., a man, aged 41, came under observation in 1928 for a gastric hemorrhage. His medical history was essentially negative, and he stated that he had not had venereal infection. In 1929 the patient was again under observation with congestive heart failure, which was classified as syphilitic pulmonary arteritis (Ayerza's disease).

Comparison of the 2-meter heart plates showed a progressive increase in the size of the right side of the heart. The blood Wassermann reaction was positive. The electrocardiogram presented an increasing degree of right axis deviation.

During the period of 1931 to 1934 the patient was an inmate of an institution and under irregular antisyphilitic therapy. In 1935 nervousness, tachycardia, fatigue and loss of weight developed with mild exophthalmos and thyroid enlargement, with a basal metabolic rate of plus 40 per cent.

Eleven patients were classified in the group with pulmonary heart disease, of whom nine were men and two were women. The age range was from 41 to 67, with a majority between 45 and 60. Eight were classified as having adenomas with thyrotoxicosis, and three were of the exophthalmic type. Only two of this group were operated on and one was treated with x-rays. The remaining eight were not operated on. Nine of these patients presented symptoms of congestive heart failure with marked dyspnea and gross edema. The cardiac examination was essentially negative, with distant heart tones. Percussion did not give information of value. The essential finding common to all this group was the marked emphysema of the chest. Clubbing of the fingers was present in four of the eleven cases.

In the electrocardiographic tracings the characteristic right axis deviation was found in only three of the cases, and conduction deformity of the ventricular complex was present in ten of the eleven.

The x-ray studies were primarily of importance in studying the pathologic changes of the lungs. Two of the patients were classified as having chronic fibroid tuberculosis. Two were classified as asthmatic with an associated bronchitis. One had a syphilitic pulmonary disease and the remainder had bronchiectasis.

In summary, eleven patients were classified as having a pulmonary form of heart disease and associated thyrotoxicosis. The essential features of this type of heart disease include the primary lung changes, emphysema, few local cardiac disorders, and the x-ray evidence.

#### SYPHILITIC HEART DISEASE

Syphilitic heart disease pathologically consists of localized aortitis, diffuse aortitis with dilatation, and aneurysm or involvement of the aortic valves with regurgitation and left ventricular hypertrophy. Myocardial gummas rarely occur and syphilitic myocarditis

<sup>58</sup> Laennec, Rene. *Cultivation mediate*, ed. 2, 1826.

<sup>59</sup> Daldy, Thomas. *Diseases of the Right Side of the Heart*.

<sup>60</sup> Bertin, J. *Maladies du cœur*, Paris, 1824. Corvisart, J. N.

*The Heart and Great Vessels*, translated by Jacob Gates, Philadelphia, 1812.

<sup>61</sup> Poselt, A. in *Lubarch-Otertag*, *Ergebn. d. allg. Path.* 13: 298, 1909.

<sup>62</sup> Ayerza, L. *Maladie d'Ayerza*, *clercosa*, *secondine de l'arter pulmonaire* (cardioques noirs), *Semana med.* 1: 43 (Jan.) 1925.

<sup>63</sup> Moebowitz, Eli. *Hypertension of the Pulmonary Circulation*, *Am. J. M. Sc.* 1: 4: 388 (Sept.) 1927.

is a disputed entity. The coronary orifices may be narrowed in the syphilitic aortitis but not as a rule in the branches in the myocardium.

We have encountered seven cases of the combination of syphilitic heart disease and thyrotoxicosis.

CASE 8—Mrs H M, aged 48, a housewife American, was married at the age of 20 and had two miscarriages. Her husband died of heart disease of an undetermined type. Her second marriage was sterile.

In 1924 she was ill for a period of several months, with weight loss, palpitation, tachycardia and dyspnea, and was told by her physician that she had a goiter. At the end of this illness her cardiac symptoms disappeared and she regained her weight loss.

From 1924 to 1930 the course was comparatively uneventful. In 1930 she had a recurrence of cardiac symptoms and the advent of congestive heart failure. Nervousness, fatigue, tremor and weight loss again recurred and her basal metabolic rate reached a level of plus 45 per cent. From a cardiac standpoint the patient presented cardiac hypertrophy with a systolic-diastolic murmur at the base with congestive heart failure, liver enlargement and edema of the ankles. Fluoroscopic examination and an x-ray film showed diffuse aortic dilatation and cardiac hypertrophy. The Wassermann reaction was positive.

Compensation was secured and successful thyroidectomy was performed. The cardiac symptoms disappeared and the patient remained fully compensated for a period of two years, with limited physical activity.

CASE 9—A business man aged 39 had measles in childhood and no other known illnesses. He was married but had no offspring. At the age of 35 he gradually lost weight and became nervous and fatigued. Paroxysmal attacks of auricular fibrillation developed and were recorded electrocardiographically. The cardiac changes included a tachycardia, systolic basal murmur and a blood pressure of 130 systolic, 80 diastolic. The basal metabolic rate was plus 25 per cent, and the Wassermann reaction was positive.

The patient was successfully operated on and the thyrotoxic symptoms were abated and the paroxysmal fibrillation disappeared. Treatment for syphilis was instituted with irregular cooperation by the patient. Two years after operation palpitation, dyspnea and stenocardia on mild exertion developed. The aorta fluoroscopically and on the x-ray film showed diffuse dilatation. The Wassermann reaction was still positive and the basal metabolic rate was normal.

Netherton<sup>64</sup> reported sixty-two cases in which syphilis and goiter were associated. Seventy-two per cent of these patients had hyperthyroidism. The cardiovascular status of these patients was not clearly stated. An excellent bibliography of the subject is presented by this author.

Schulmann<sup>65</sup> reported three cases of thyrotoxicosis and syphilitic disease. The cardiac changes were not given in the first case. The second patient appeared to have aortic regurgitation. The third patient had syphilitic aortitis with dilatation. A number of cases of thyrotoxicosis and syphilis were reviewed but little information was given concerning the cardiovascular state. Several authors were quoted who presumed that syphilis was a cause of exophthalmic goiter.

Seven patients were found with thyrotoxicosis and associated syphilitic infection. Six of the seven showed definite syphilitic cardiovascular symptoms and one case was classified as potential heart disease with no demonstrable evidence of aortitis.

Five of the patients were women and two were men. The age range was from 20 to 55. Six of the patients had adenomas with thyrotoxicosis and one was of the

exophthalmic type. Only two of the group were operated on. Three patients presented symptoms of congestive heart failure and four were without symptoms.

Physical changes in this group were dependent on the type of syphilitic heart disease presented. One patient showed a characteristic aortic regurgitation with a dilated aorta, with a systolic-diastolic murmur at the base of the heart. The other five showed systolic basal murmurs with varying degrees of accentuation of the aortic closure. Two patients showed some degree of hypertension. One patient had an associated syphilis of the central nervous system.

In the electrocardiographic tracings one patient was shown to have developed paroxysmal auricular fibrillation. Left axis deviation was found in three patients and the axis deviation was normal in four. Conduction deformity of the ventricular complex was found in three of the seven. In only one patient of the group was the history of the primary lesion obtained.

In summary, seven patients were classified in the syphilitic group, six of whom were found to have definite cardiovascular involvement with thyrotoxicosis.

#### NEUROCIRCULATORY ASTHENIA

The effort syndrome, irritable heart, disordered action of the heart, soldiers' heart and neurocirculatory asthenia are diagnostic terms of functional cardiac disorders. Lewis's<sup>66</sup> monograph on this subject, as a result of cardiac problems arising during the World War, crystallized diagnostic concepts of this syndrome. Essentially this type of functional cardiac disorder consists of symptoms of "breathlessness on exertion, fatigue, exhaustion, precordial pain, palpitation, faintness, giddiness, tachycardia and unstable blood pressure." The term "effort syndrome" implies the poor cardiac response to exertion. Manifestations of psychoneurosis are often present. Evidence of organic heart disease is absent. Lewis<sup>66</sup> states "It has been suggested that the symptoms and signs in these patients are the result of excessive internal secretion of the thyroid gland. The onus of proof rests on those who put forward this hypothesis." He found palpable enlargement of the thyroid gland in only nineteen of 504 soldiers examined.

The similarity of this syndrome and the symptomatology of thyrotoxicosis is obvious. The patient with neurocirculatory asthenia may be mistakenly diagnosed as having thyrotoxicosis and undergo thyroidectomy. No doubt cases of thyrotoxicosis have been wrongly classified as effort syndrome. One must also consider the possibility of a combination of thyrotoxicosis and neurocirculatory asthenia in the same patient. We have encountered seven patients with neurocirculatory asthenia who have undergone thyroidectomy. Five were women and two were men. The age range was from 22 to 40. All were classified as having adenomatous goiters with thyrotoxicosis. These patients presented the usual syndrome of fatigue, palpitation, weakness and inability to withstand physical or emotional activity. Physical examination was essentially negative. Tachycardia was always present. No murmurs were present. Their blood pressure readings showed many variations even over short periods of time. The electrocardiographic tracings were all normal and the x-ray studies were negative. The basal meta-

<sup>64</sup> Netherton, E. W. Syphilis and Thyroid Disease with Special Reference to Hyperthyroidism. *Am J Syph.* 16: 479-510 (Oct.) 1932.

<sup>65</sup> Schulmann, Ernest. Syphilis of the Thyroid Gland with Special Reference to Exophthalmic Goiter. *Internat Clin* 4: 126-136 (Dec.) 1924.

<sup>66</sup> Lewis, Thomas. Medical Research Committee. Report on Soldiers Returned as Cases of Disordered Action of the Heart (D.A.H.) or Valvular Disease of the Heart (V.D.H.) with Supplementary Memoranda. 1918.

bolic rates were secured with considerable difficulty. Repeated trials were usually necessary and apprehension of the patients often gave inaccurate tests, but normal readings after repeated efforts, were secured in all these patients.

We had the opportunity of studying three of these patients both before and after operation. In one of the three we recommended thyroidectomy and two were advised against it. In the patient in whom we advised operation, our subsequent studies have shown no remission of symptoms.

We do not feel that we have encountered a patient with the combination of neurocirculatory asthenia and thyrotoxicosis.

The four patients whom we have studied only after thyroidectomy reported no beneficial results of the operation.

Differential diagnosis of these two syndromes is usually difficult. There is no single criterion on which differentiation may be established. Our studies would indicate that thyrotoxicosis is not a factor in the production of the syndrome of neurocirculatory asthenia. It appears possible, however, that the two syndromes may coexist in the same individual.

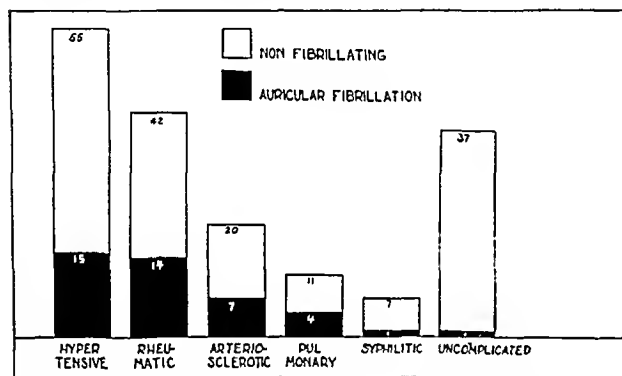


Fig. 10—Incidence of the various etiologic factors with thyrotoxicosis producing auricular fibrillation.

#### SUBACUTE BACTERIAL ENDOCARDITIS

One case of subacute bacterial endocarditis with an older rheumatic valvulitis with thyrotoxicosis was encountered. The patient was a young woman with a mild mitral stenosis in whom a thyrotoxicosis with exophthalmos developed. Six months after the onset of the thyroid intoxication, following the extraction of an infected tooth, she showed marked aggravation of symptoms with elevation of temperature, splenic enlargement, petechiae and a positive blood culture of *Streptococcus viridans*. The course lasted twenty-one days. Autopsy was refused.

#### AURICULAR FIBRILLATION

Auricular fibrillation was encountered in forty-two cases, or 22 per cent. Anderson<sup>22</sup> quotes an incidence of from 6 to 9 per cent in his studies and Barker<sup>21</sup> gives an incidence of 15 per cent. In our series there is a higher percentage of nonsurgical cases than in either of these studies.

With one exception, all the cases in which auricular fibrillation was present were associated with organic disease. The frequency of the various types is demonstrated in figure 10. Hypertension, rheumatic disease and coronary sclerosis account for the majority of the cases.

In this group of forty-two patients, 38 per cent (sixteen) were men and 61 per cent (twenty-six) were women. The age range was from 34 to 72 years, with 75 per cent of the patients between 40 and 60. The average age was 52.4 years. Six cases were of the paroxysmal type and thirty-six were of the chronic type of auricular fibrillation. In one fourth of the patients who were operated on, fibrillation still continued postoperatively. Three had exophthalmic goiters and thirty-nine had the adenomatous type.

There did not appear to be any definite relationship between the degree of thyrotoxicosis and the occurrence of the auricular fibrillation. The exceptionally high basal metabolic rates were not always accompanied by the irregularity.

Congestive heart failure was present in the majority of cases (thirty-eight) and was absent in only four cases.

It was our judgment from the study of this group of patients that the basic cause for the auricular fibrillation was the structural heart disease and that the precipitating element was the thyrotoxicosis.

#### SUMMARY

In studying the effects of thyrotoxicosis on the cardiovascular system, one must duly consider the presence or absence of other causative agents that might affect the heart and blood vessels. If such an etiologic factor of heart disease is present or has been previously active, one must evaluate the cardiovascular changes in the light of both elements.

In this series of patients, etiologic factors of hypertension, rheumatic infection, arteriosclerosis, pulmonary disease, syphilis and *Streptococcus viridans* were found to have been coexistent with the thyrotoxicosis or pre-existent to the advent of the thyrotoxicosis.

The problem therefore was to ascribe to each factor its proper share in the production of the abnormal cardiovascular changes. Our method of solving this problem was predicated on the assumption that hypertension, rheumatic infection, arteriosclerosis, syphilis, pulmonary disease and *Streptococcus viridans* are each associated with reasonably consistent and characteristic pathologic changes in the heart and blood vessels. The effect of thyrotoxicosis, uncomplicated by these other etiologic factors on the cardiovascular system, afforded a comparative base for the complicated group. Evaluation of symptoms and signs before and after thyroidectomy was also an aid. The problem, however, of assigning each factor its proper share was not without difficulty, and possibilities of error are, of course, conceded.

In the group of patients with uncomplicated thyrotoxicosis, the subjective symptoms were limited to palpitation and rapid heart beat. Objectively there were no characteristic physical changes other than tachycardia and lability of blood pressure with emotional stress. (One exception was noted in the occurrence of a paroxysmal auricular fibrillation in a patient whom we classified as not having structural heart disease.)

In the group of patients with thyrotoxicosis and coexistent etiologic factors, added subjective complaints were present, such as dyspnea, orthopnea, cough, angina, stenocardia and hemoptysis. Objectively there were a variety of physical changes, such as murmurs, thrills, friction rub, gallop rhythm and arrhythmias. The cardiac images on the 2-meter films were of varied

shape and size. The diversity of these changes testified, in a measure, to a multiplicity of causative factors rather than the single element of thyrotoxicosis.

On analysis of each individual case the evidence was sufficient to classify the cases into groups of (a) hypertensive vascular disease, (b) rheumatic valvular disease, (c) arteriosclerotic coronary disease, (d) syphilitic cardiovascular disease, (e) cor pulmonale, and (f) thrombo-endocarditis. A few patients had more than one such factor to consider, such as combinations of arteriosclerosis and hypertension, pulmonary disease and arteriosclerosis, or syphilis and hypertension. In such cases classification was made on the basis of the predominant factor.

Congestive heart failure was not present in uncomplicated thyrotoxicosis. The presence of this phenomenon was associated with the coexistence of a structural lesion.

Physiologically, thyrotoxicosis appeared to act on the heart to increase its metabolic activity as it does on other organs. This was manifested primarily by tachycardia. Abnormal cardiac physiologic function, as determined clinically or demonstrated objectively by the electrocardiogram, such as heart block (all types) damage to ventricular conduction system and auricular fibrillation, appeared to be manifestations of the primary organic heart disease modified by the element of thyrotoxicosis.

The frequency of occurrence of uncomplicated thyrotoxicosis in this series is 20 per cent, and of thyrotoxicosis complicated by organic heart disease 75 per cent. It is possible that this does not present a true statistical picture of the problem, as two of the three sources of our material are a private practice of heart disease and a heart dispensary, where one might expect to find a high percentage of the combination of organic lesions and thyrotoxicosis. Further studies from a statistical standpoint are desirable from other sources such as a large surgical goiter clinic, or a general medical source. The general conclusions, however, regardless of the incidence would remain the same.

It is not within the scope of this paper to discuss fully the ramifications of the interrelationship of thyrotoxicosis and the various types of structural heart disease. In general, however, the effect of the thyrotoxicosis appeared to be that of a catalytic agent. The course of the organic heart disease progressed more rapidly when the thyrotoxicosis was active. The thyrotoxicosis brought to the surface latent cardiovascular lesions, which resumed their latency on the successful termination of the thyroid toxemia.

We wish to point out the desirability of considering the patient from two points of view: first the thyrotoxic aspect and, second, that of coexisting organic heart disease. Also we would stress the necessity of diagnostic studies along these lines. This implies exhaustive historical data, searching physical examination, and the full utilization of laboratory methods, particularly the roentgenographic and electrocardiographic methods.

#### CONCLUSION

It is our belief that the next step in the further reduction of surgical mortality and morbidity (since iodine has been demonstrated as successful in temporarily controlling the thyrotoxicosis) lies in the recognition and proper management of all associated pathologic changes, particularly in the cardiovascular system.

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## TYPE SPECIFICITY IN PNEUMONIA AND PNEUMOCOCCIC INFECTIONS

### A PRELIMINARY REPORT

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Clinical, bacteriologic and epidemiologic questions arise from the more exact differentiation of the old group IV pneumococcus into twenty-seven specific serologic groups. In view of the work of Cooper<sup>1</sup> on the separation of these newer types of pneumococci, a review of the incidence of pneumococcus types in various localities is in order. As there are no data available concerning type specificity of pneumococci found in pneumonia in a general hospital in this locality, it was thought worth while to present some of the results of a study that is being made at San Francisco Hospital, in the present paper the survey covers the period from December 1932 to December 1935. The incidence of types and the sources of pneumococci from infections other than pneumonia during this period have been included in the report.

During the first part of the study, the pneumococci were classified by use of serums of types I, II, III and VII, subgroup IIA was designated as such, the "unclassified" included all the pneumococci that failed to be grouped into these five types. Later in the study we became interested in learning how this group of "unclassified" pneumococci could be separated into the types as identified by Cooper. In order to complete the classification of the types serums of types I to XXXII inclusive were obtained in January 1934 from the department of health of New York City, through the cooperation of Georgia Cooper.

In this report we are chiefly interested in the bacteriologic aspect of lobar pneumonia in adult patients in the medical division of this hospital. Material was collected from other infections throughout the University of California Service of this hospital. We present our bacteriologic procedures, methods for typing and the results with a discussion of type classification including the figures for the incidence, mortality, bacteremia complications and the monthly distribution of each type specific pneumococcus that was isolated. We offer comparative figures from recent publications of similar investigations in other localities where serums from the same source as ours were used for type classification. Also data on a series of serum-treated cases have been included.

#### BACTERIOLOGIC PROCEDURES

**Blood Cultures**—Blood cultures were usually taken within twelve hours after admission of the patients, if no growth was found in forty-eight hours, cultures were repeated when clinically indicated. About 5 cc of blood was added directly to 100 cc of hormone-brain broth. Pour plates were made only when bac-

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The authors acknowledge assistance from the George Williams Hooper Foundation for Medical Research during the early part of the work. The last twenty-seven months' work was assisted by a grant from the Christine B. and R. C. Fund.

<sup>1</sup> Cooper, Georgia, Edwards, Marquerite and Roentgen, Carolyn. The Separation of Types Among the Pneumococci. *Hitherto Called Group IV* and the Development of Therapeutic Antiserums for These Types. *J. Exp. Med.* 49:461-474 (March) 1929; *ibid.* 55:531-534 (April) 1932.

terial counts were desired. After four to twenty-four hours' incubation at 37 C., growth was found in the hormone-brain broth, from 0.3 to 0.5 cc was transferred to 5 cc of dextrose-veal-ascitic broth (50 per cent ascitic fluid) or to 5 cc of brain heart broth (Difco). This transplant usually had sufficient growth in from four to six hours to permit typing and the test for solubility in bile. The fermentation of inulin was determined, and the appearance of the growth on blood agar was noted. The original blood culture was centrifuged and often the supernatant fluid could be used for typing.

**Sputum**—About 1 cc of thick sputum was selected, washed several times in sterile saline solution, and emulsified, 3 or 4 drops was added to 5 cc of dextrose-veal-ascitic broth and incubated for from four to ten hours, the remainder was inoculated intraperitoneally into a white mouse. From five to eighteen hours later, the mouse was killed and the peritoneal exudate was removed, the heart was removed and cultures were

platinum loop, 4 mm in diameter, was used.) Clumping or flocculation appeared within a few moments, agitation accelerated the reaction.

**Test Tube Method**—This method was necessary when the diagnostic serum crossed with that of other strains. The serum was diluted as indicated on the serum bottle, equal parts of the diluted serum and the culture were used, usually 0.5 cc of each. The tubes were incubated or placed in a water bath at 56 C for from one to two hours, after which time the resulting agglutination was read.

**Neufeld Method**<sup>2</sup>—The sputum was placed in saline solution in a petri dish and small flecks were washed out. Very small amounts were picked up with a platinum loop and placed on cover glasses. To each bit of sputum, one loopful of diagnostic rabbit serum was added, followed immediately by a drop of Loeffler's methylene blue. Each cover glass was inverted over a petrolatum ring on a slide and the preparation was examined under the high dry or oil immersion lens of the microscope. Within two to thirty minutes the capsule of the pneumococcus would give a characteristic swollen appearance when in its homologous serum. In our experience, this is the most rapid method and is dependable. This method is also applicable to the growth in blood cultures and to pneumococci found in purulent exudates.

**Results of Typing**—Pneumococci that were isolated from blood cultures and from heart blood of mice following inoculation with sputum were considered most desirable for type classification of the pneumonia cases. Sputum cultures checked the mouse inoculations seventy out of seventy-three times, in nine cases they checked the positive observations in the blood culture when a mouse inoculation had been omitted.

Although type specific pneumococci may be isolated from the blood, sputum, nasopharynx or purulent exudate such as empyema fluid, the question arises as to whether the pneumonia patient without sputum (a small minority) and with a supposedly negative blood culture may be type specifically classified from the nasopharyngeal cultures. Nasopharyngeal cultures checked the mouse inoculations (sputum) sixty out of sixty-four times, in sixteen cases in which the blood culture was positive, the type of pneumococcus isolated from the nasopharyngeal swab checked with that in the blood culture.

The type of the organism isolated from purulent complications (table 7) checked with the type from the blood or from the sputum except in one case in which a slightly reacting type VI organism was found in the sputum late in the pneumonia, and subsequently the empyema fluid showed a type I organism.

In nine cases, cultures were taken from the affected lobes at the postmortem examinations when the necropsies were performed within two hours after death. All these typings corroborated the results from the sputum by mouse inoculations or from the blood cultures.

From a few cases, which are not included in the tables a single specimen of sputum yielded two distinct types of pneumococci following the mouse inoculation. In one instance the exudate of the mouse gave a type II and the heart culture gave a type I organism. Similar results have been reported by Heffron and

TABLE 1—Incidence of Types of Pneumococci

Types	Total Cases	Pneumonia	Not Pneumonia
I	141	18 (42.8%)	0
II	39	39 (12.1%)	0
III	30	27 (8.3%)	0
IV	1	1	0
IIA	1	1	0
V	8	6	0
VI	4	3	2
VII	17	14 (4.0%)	1
VIII	9	8 (1.4%)	1
IX	3	1	2
X	2	2	0
XI	1	1	0
XII	1	1	0
XIII	5	4	1
XIV	2	1	1
XV	3	2	1
XVI	2	1	1
XVII	1	1	0
XVIII	3	0	1
XIX	1	1	0
XX	1	1	0
XXI	2	2	0
XXII	1	1	0
XXIII	1	0	1
Unclassified*	60	62	3
Total	363	122	31

\* Only two of these failed to type when all diagnostic serums were used. Sixty three were isolated previous to 1934.

taken. About 0.5 cc of the peritoneal exudate was added to 5 cc of broth, the remainder was centrifuged at low speed and the supernatant fluid was transferred to another tube to be used for typing, a test for solubility in bile was done if the quantity permitted. The exudate and heart cultures usually had sufficient growth in from three to six hours to permit typing.

**Nasopharyngeal Cultures**—Often acutely ill adults did not produce sputum that was satisfactory for study, therefore, nasopharyngeal swabs were taken and cultures made on blood agar plates and in dextrose-veal-ascitic broth. The broth cultures usually gave sufficient growth in from six to ten hours to permit typing, in order to check the results, pure cultures of pneumococci were isolated from the plates on the following day.

**Other Specimens**—Cultures of cerebrospinal fluid, thoracentesis fluid, and purulent material from otitis media, mastoiditis and abscesses were grown on blood agar plates and in ascitic broth. Fluids were centrifuged at low speed and occasionally typing could be done on the supernatant fluid.

#### TYPING

**Macroscopic Slide Method**—One loopful of the diagnostic typing serum was placed on a slide, one loopful of the material to be typed was added and mixed. (A

2. Sabin A. B. Immediate Pneumococcus Typing Directly from Sputum by the Neufeld Reaction. J. A. M. A. 100: 1583 (May 20) 1933. Beckler Edith and MacLeod Patricia. The Neufeld Method of Pneumococcus Type Determination as Carried Out in a Public Health Laboratory. J. Clin. Investigation 13: 901 (Nov.) 1934.



Varley<sup>3</sup> Further work was not done with these cultures to determine the stability of the typing reactions

In the course of our study we became interested in learning whether there were any pneumococci that would remain unclassified when we typed with serums prepared in New York City Only one has been found

TABLE 2—Comparative Occurrence of Types

Type	Our Series	Sutcliffe Finland <sup>4</sup>	Bullowa Wilcox <sup>5</sup>
I	42.8%	31%	2.0%
II	12.1	17	9
III	8.5	16	9

in a series of 111 cases of pneumonia (table 6) and one in the group of other infections (table 9) The first unclassified culture was isolated from the blood of a patient who developed lobar pneumonia following severe burns of the throat caused by saponated solution of cresol, *B. influenzae* also was found in this patient's

who report 27.5 per cent bacteremia in type I in a series of 127 cases The recent report by Bullowa and Wilcox<sup>5</sup> gives figures that may be compared with ours (table 4)

As stated under "Bacteriologic Procedures," our blood cultures usually were taken within twelve hours of admission, and in the event that they were negative, repeated cultures were taken when clinically indicated It was found that 113 patients had a bacteremia, 110 of these had growth in the initial cultures In thirty cases the blood culture was repeated two or three times, and only three were positive when the initial culture was negative, several were repeatedly positive Of the fifty-three females, ten (18.8 per cent) had a bacteremia

**Mortality**—The mortality in the cases that were not serum treated is presented in table 3 In the group of 119 cases of type I there was a mortality of fifty-two cases (43.7 per cent) Of these fifty-two patients, forty-one (78 per cent) had a bacteremia, thirty-eight

TABLE 3—Bacteremia and Mortality of Pneumonia Patients Not Treated with Serum

Type	Total Cases	Bacteremia			Mortality				Recovery			
		Total	Died	Recovered	Total	Bac- teremia	Not Bac- teremia	Not Cultured	Total	Bac- teremia	Not Bac- teremia	Not Cultured
I	119	58 (48.7%)	41 (70%)	17	52 (43.7%)	41 (78%)	8	3	67 (56.3%)	17	46	4
II	32	10 (31.3%)	7 (70%)	3	9 (28.1%)	7 (77%)	2	0	2 (7.1%)	1	1	1
III	27	9 (33.3%)	6 (66%)	3	12 (44.4%)	6 (50%)	6	0	1 (3.6%)	12	0	0
IV	3	0	0	0	0	0	0	0	3	0	3	0
V	6	2	0	2	1	0	1	0	2	0	2	0
VI	5	2	0	2	2	1	1	0	0	0	0	0
VII	2	1	0	1	2	1	1	0	0	0	0	0
VIII	14	2 (14.3%)	2	0	3 (21.4%)	2 (66%)	0	1	11	0	10	1
IX	8	4 (50.0%)	2	2	4 (50.0%)	2	1	1	1	2	0	0
X	1	1	0	1	0	0	0	0	1	1	0	0
XI	2	2	2	0	2	2	0	0	0	0	0	0
XII	1	0	0	0	0	0	0	0	1	0	1	0
XIII	1	0	0	0	0	0	0	0	1	0	1	0
XIV	4	1	0	1	0	0	0	0	4	1	3	0
XV	1	0	0	0	0	0	0	0	1	0	1	0
XVI	2	0	0	0	0	0	0	0	2	0	2	0
XVII	1	0	0	0	0	0	0	0	1	0	1	0
XVIII	1	0	0	0	0	0	0	0	1	0	1	0
XIX	1	0	0	0	0	0	0	0	1	0	1	0
XX	1	0	0	0	0	0	0	0	1	0	1	0
XXI	2	0	0	0	1	0	1	0	1	0	1	0
XXII	1	0	0	0	0	0	0	0	1	0	1	0
Unclassified*	62	6	3	3	10	3	6	1	52	3	44	6
Totals	296	99 (33.4%)	66 (66%)	33	93 (31.4%)	66 (66%)	27	6	197	33	132	12

One strain failed to type when all serums were used

blood culture The other strain that failed to type was isolated from the blood and the cerebrospinal fluid of a patient with primary meningitis, this strain was sent to Miss Cooper, who corroborated our results

#### RESULTS OF TYPE CLASSIFICATION

**Incidence**—The incidence of the various types found in pneumonia and other infections is shown in table 1 In this survey, 91 per cent of the pneumococci were isolated from patients with pneumonia, of these fifty-three (16 per cent) were females The early methods and serums used for classification may have included a few type V pneumococci with type II and some type VIII with type III The incidence of the types found here can be compared with recent Eastern data only in the first three types because the total number of our cases in the other types is too small to be of comparative significance All the figures are from large groups, irrespective of the type of therapy

**Bacteremia**—Bacteremic rates for the various types in the group not serum treated are shown in table 3 A comparative figure is one by Heffron and Anderson,<sup>4</sup>

<sup>3</sup> Heffron, Roderick, and Varley, F. M. Lobar Pneumonia in Massachusetts. *Am J Pub Health* 22: 1230 (Dec.) 1932

<sup>4</sup> Heffron, Roderick, and Anderson, G. W. Two Years Study of Lobar Pneumonia in Massachusetts. *J A M A* 101: 1246 (Oct. 21) 1917

of these forty-one patients had evidence of the bacteremia in their initial blood culture Of the fifty-eight patients with bacteremia, forty-one (70 per cent) died

In the group of thirty-two cases of type II pneumonia there was a mortality of nine (28.1 per cent) Of these nine patients, seven (77 per cent) had a

TABLE 4—Comparison of Present Series with Series of Bullowa and Wilcox

Type	Our Series (1921-1933)	Bullowa Wilcox (1925-1933)
Irrepective of type of therapy		
I	49.2%	27.1%
II	2.9	3.6
III	33.8	3.3
Cases not serum treated		
I	45.7%	22.0%
II	31.2	4.0
III	22.0	27.1
VII	14.0	12.0

bacteremia as found by the initial blood culture Of the thirty-two patients, ten (31.2 per cent) had a bacteremia, of these ten patients, seven (70 per cent) died

<sup>5</sup> Bullowa, J. G. M. and Wilcox, Clare. Incidence of Bacteremia in the Pneumonia and Its Relation to Mortality. *Arch Int Med* 55: 558 (April) 1935

There were twenty-seven patients with type III pneumonia, of whom twelve (44 per cent) died. Of these twelve, six (50 per cent) had a bacteremia when admitted. Of the nine patients with bacteremia, six (66⅔ per cent) died.

When considering the total 296 patients not serum treated we found that ninety-nine (33.4 per cent) died,

TABLE 5—Comparative Figures on Mortality in Pneumonia

Type	Our Series*	Bullowa Wilcox*	Sutliff Finland†	Smillie†
I	43.7%	32.0%	30.0%	16.7%
II	28.1	45.0	40.0	26.4
III	44.0	40.0	62.0	18.7
VII	21.4	21.0	40.0	
Average (all types)	33.4	29.0	41.2	

\* Only cases not serum treated

† Cases both serum treated and not serum treated

the same number also had a bacteremia, of whom sixty-six (66 per cent) died. Bullowa and Wilcox report a mortality of 64 per cent in their bacteremic cases.

mation to Dr Edwin L. Bruck, in whose service the serum was used.

The series of twenty-six cases treated with specific serum is very small, too small for accurate conclusion. There were nineteen cases of type I pneumonia, in ten of which a bacteremia was present. Seven of the bacteremic and two of the nonbacteremic patients died. On the average, admission was on the fifth day of illness, serum was administered on the sixth to seventh day of illness. There were seven cases of type II pneumonia, bacteremia was found in four patients. Two of the bacteremic patients died. On the average, admission was on the third to fourth day of illness, serum was administered on the fifth day of illness.

The mortality rate was not reduced by the use of serum when a bacteremia was present. We believe that the most important factor in determining the prognosis in this small series was the presence or absence of a bacteremia rather than the use or nonuse of serum.

**Purulent Complications.**—Purulent complications in the series of cases of pneumonia not serum treated are

TABLE 6—Pneumonias Classified by Serums I to XXXII Since January 1934

Type	Total Cases	Bacteremia			Mortality				Recovery				Total Complications
		Total	Died	Recovered	Total	Bacteremic	Not Bacteremic	Not Cultured	Total	Bacteremic	Not Bacteremic	Not Cultured	
I	49	22 (44.9%)	13	7	19 (38.7%)	15	3	1	30	7	22	1	10
II	7	4	2	2	4	2	1	0	4	2	2	0	1
III	11	6	4	2	6	4	2	0	5	2	3	0	3
IV	3	0	0	0	0	0	0	0	2	0	2	0	0
V	2	2	2	0	3	2	1	0	2	0	2	0	1
VI	2	2	1	0	2	1	1	0	0	0	0	0	1
VII	7	4	2	2	4	2	0	1	4	0	4	0	1
VIII	8	4	2	2	4	2	1	1	4	2	2	0	1
IX	1	1	0	1	0	0	0	0	1	1	0	0	0
X	2	2	2	0	2	2	0	0	0	0	0	0	1
XI	1	0	0	0	0	0	0	0	1	0	1	0	0
XII	1	0	0	0	0	0	0	0	1	0	1	0	0
XIII	4	1	0	1	0	0	0	0	4	0	4	0	1
XIV	1	0	0	0	0	0	0	0	1	0	1	0	0
XV	1	0	0	0	0	0	0	0	2	0	2	0	0
XVI	2	0	0	0	0	0	0	0	1	0	1	0	0
XVII	1	0	0	0	0	0	0	0	1	0	1	0	0
XVIII	1	0	0	0	0	0	0	0	1	0	1	0	0
XX	1	1	0	1	0	0	0	0	1	0	1	0	0
XXI	2	0	0	0	1	0	1	0	1	1	0	0	0
XXV	1	0	0	0	0	0	0	0	1	0	1	0	0
Unclassified	1	1	1	0	1	1	0	0	0	0	0	0	0
Totals	111	46 (41.0%)	31	16	44 (39.2%)	31	10	3	68	16	40	1	21

\* Failed to type in all serum.

Of the fifty-three females, fourteen (26.4 per cent) died, ten (18.8 per cent) had a bacteremia, and nine had complications.

The comparative figures on mortality in pneumonia are given in table 5. In comparing these figures, there are several factors which should be considered in each report, such as type of therapy and hospitalization. Bullowa and Wilcox's cases are those listed as having received no specific serum therapy. Sutliff and Finland's<sup>6</sup> data included cases treated and untreated (by serum). Some of Smillie's<sup>7</sup> patients had received serum therapy and some had not been hospitalized.

The incidence, mortality, bacteremic rates and complications for the cases of pneumonia in the group in which we used serums for types I to XXXII are presented in table 3. The time interval is Jan. 1, 1934, to Dec. 1, 1935.

**Serum Therapy.**—While this in the main is a report on the bacteriologic aspect of pneumonia, information regarding the use of therapeutic serum in this hospital will be summarized. We are indebted for this infor-

mation to Dr Edwin L. Bruck, in whose service the serum was used. In the group of twenty-six serum treated cases there were two empyemas in type I and two in type II. In table 8 we compare the figures for

TABLE 7—Purulent Complications in Pneumonia Patients Not Treated with Serum

Type	Total Cases	Empyema	Subcutaneous Abscesses	Otitis Media	Mastoiditis	Meningitis	Total	Per Cent
I	119	13	2			1	16	13.4
II	32	2					2	6.2
III	27	2		1	1	1	5	18.5
IV	3			2			2	
V	2					1	1	
VII	14					1	1	7.1
VIII	8	1					1	12.5
X	2					1	1	
XIV	4		1				1	
Unclassified*	62	2				2	4	
Total		20	3	3	1	7	34	

\* These were found before all diagnostic serums were available.

complications of the combined group of cases serum treated and cases not serum treated with those reported by Sutliff and Finland, whose data are on cases irrespective of the type of therapy. The complications in the other types are presented in table 7 merely by number, for the series is too small to be of comparative significance.

<sup>6</sup> Sutliff W. D. and Finland Maxwell. The Significance of Newly Classified Types of Pneumococci in Disease. J. A. M. A. 101: 1289 (Oct. 21) 1933.

<sup>7</sup> Smillie W. G. The Epidemiology of Lobar Pneumonia. J. A. M. A. 101: 1281 (Oct. 21) 1933.

**Distribution**—The monthly distribution of the various types is given in table 9. Conclusions cannot be drawn regarding the distribution of the specific types, however, the group shows a higher occurrence in the winter months and a lesser frequency in the summer months. In the first year there was a considerable increase in cases of type I pneumonia during May.

TABLE 8—Complications of the Combined Group of Serum Treated and Not Serum Treated Cases

Type	Our Series	Sutcliffe Finland
I	13 1%	17 0%
II	10 1	7 0
III	18 5	7 0
VII	7 0	11 0

TABLE 9—Monthly Distribution of Type Specific Pneumococci Pneumonias for the Three Years December 1932 to December 1935

Type	January	February	March	April	May	June	July	August	September	October	November	December	Total
I	21	16	9	8	16	8	2	6	10	17	14	13	132
II	7	7	9	9	1	1	1	1	0	0	1	0	39
III	1	3	4	1	1	1	0	1	2	2	1	4	27
IIA	0	0	0	0	0	0	0	0	0	0	0	0	0
V	1	0	0	1	1	1	1	0	0	0	1	0	6
VII	0	0	1	0	3	3	0	1	2	0	2	14	34
VIII	0	0	1	3	0	0	0	1	0	1	0	8	13
Other types	3	3	3	4	1	1	2	0	1	0	0	2	22
Unclassified	23	8	14	5	2	1	1	0	1	1	1	12	62
Totals	31	39	40	38	33	14	6	8	13	10	30	24	377

\* Sixty one of these were found before all serum were available

The yearly incidence of each type varies considerably, though type I was persistently high during the first two years of the study. During 1935, however, there were only fourteen cases, which is 26.4 per cent of the total cases during that year. Of the thirty-nine cases of type II, thirty were found during the first seven months of the study.

In April 1935 Lister and Ordman<sup>8</sup> of the South African Institute for Medical Research published a lengthy report concerning the epidemiology of pneumonia and the prevention of it by means of vaccine. We regret that the South African classification of types of pneumococci differs from the American, thereby making a direct comparison of statistics not feasible at this time. However, we wish to call attention to this valuable contribution to the study of the epidemiology and prophylaxis of pneumonia.

**Other Etiologic Agents**—The incidence of organisms other than the pneumococcus as the etiologic cause of pneumonia is merely mentioned here. There were fifteen cases of which six were caused by Friedlander's bacillus, four by beta hemolytic streptococci, three by *Staphylococcus aureus*, one by an organism of the *Neisseria* group, and one by *B. coli*.

#### INFECTIONS OTHER THAN PNEUMONIA

Pneumococci were isolated from the blood or purulent material or both from thirty-one patients with no clinical or pathologic evidence of pneumonia. Table 10 shows the incidence, the sources and the mortality of the different types with classification according to clinical

disease. Two of the patients with peritonitis were adult males, one of these (type I) had sputum containing large numbers of type I pneumococci, however, the clinical diagnosis of pneumonia could not be made. In this group of other infections, type III was the most frequently encountered type, similar observations have been reported by several other investigators. Two cases of bilateral mastoiditis showed a type I and II, respectively, in one mastoid and beta hemolytic streptococci in the other mastoid; these cases have not been included in any of the tables.

#### SUMMARY

In an interval of three years, from December 1932 to December 1935, pneumococci were found in 353 patients, of whom 322 adults (91 per cent) had pneumonia.

During the last twenty-three months of this study, diagnostic serums of all available types, that is, I to XXXII, were used. Eighteen types other than the original three were found in either pneumonia or other infections. Only two strains were found that failed to be classified in types I to XXXII.

In pneumonia, type I was the most frequently encountered type, having been found in 138 (42.8 per cent). The order of prevalence of the other types was

TABLE 10—Infections Other Than Pneumonia

Source	Type	Cases	Mortality
Mastoiditis	I	2	0
	III	4	0
	V	1	0
	IX	1	1
	XI	1	0
	XX	1	0
	Total	10	
Meningitis	III	2	2
	V	2	2
	VI	1	1
	VII (also B influenzae)	1	1
	VIII	1	1
	Unclassified	3	3
	Total	10	10
Brain abscess	IX	1	1
Infection of upper respiratory tract	IX	1	0
	VI	1	1
	XIV	1	1
Septicemia	III (also <i>Staphylococcus aureus</i> )	1	1
Appendiceal abscess	XV	1	1
Peritonitis	I	1	1
	III	1	1
	XXI	1	0
Nephritis	IX	1	1
Pilon abscess	XXII (also B tuberculosis)	1	0
		31	19

\* One of these failed to type when all serums were used

type II, 12.1 per cent; type III, 8.5 per cent; type VII, 4.3 per cent; type VIII, 2.4 per cent.

The incidence, bacteremic rates and mortality of type I (42.8, 49.2 and 44.1 per cent respectively) has been found to be higher than elsewhere.

Seventeen types other than the original three were found in fifty cases of pneumonia. From this small series conclusions cannot be drawn as to the individual clinical characteristics of these types in this locality.

The Neufeld method for typing has been found to be satisfactory.

<sup>8</sup> Lister, Sir Spencer and Ordman, David. The Epidemiology of Pneumonia on the Witwatersrand Goldfields and the Prevention of Pneumonia and Other Allied Acute Respiratory Disease in Native Laborers in South Africa by Means of Vaccine. Pub. XXXIII. South African Institute for Medical Research, April 1935.

## Clinical Notes, Suggestions and New Instruments

### CONTACT ULCER OF THE LARYNX

GEORGE H. WOODRUFF, M.D., JOLIET, ILL.

'Contact ulcer of the larynx is a superficial ulceration occurring on one or both sides of the larynx posteriorly, the ulcerated surface coming in contact on phonation with the same region on the opposite cord, the latter being ulcerated or not according to whether the ulceration is unilateral or bilateral.' This definition was given by Chevalier Jackson<sup>1</sup> in 1928 when he made the first presentation of the subject in the literature. Since then he has written several articles in conjunction with Chevalier L. Jackson,<sup>2</sup> who has also written independently on the subject.<sup>3</sup> Together they have seen 264 cases.

Contact ulcer has been reported by very few other men,<sup>4</sup> perhaps not more than three or four, and still remains an uncommon condition as far as the records go. It is probable however that, in the past, many cases have been overlooked or are unreported. In 1935 the Jacksons<sup>2,3</sup> published an extensive article which probably contains all that is known about the condition at the present time.

Peroni<sup>4</sup> of Milan found the typical lesions of contact ulcer in the larynges of two cadavers. This information is included in the latest article by the Jacksons.

#### REPORT OF CASE

**History**—A man, aged 42, seen at the clinic of the Illinois Eye and Ear Infirmary, Aug. 28, 1933, complained of sore throat and a pain in the left ear traveling down the throat. The symptoms first appeared following a severe cold about five months before. At times he had nocturnal choking spells and a sense of constriction in the throat. He had varying degrees of hoarseness, and at times after prolonged use his voice would fail entirely. He had been a salesman and used his voice a great deal, but he was unemployed when he came to the clinic. It was noted that he definitely had a raspy or throaty method of voice production.

**Examination**—On examination the mouth, pharynx, nasal chambers and ears were essentially normal.

Mirror laryngoscopy revealed a small, slightly elevated dull reddish area in the posterior part of the larynx on the left side in the region of the vocal process of the arytenoid cartilage, which is the area of insertion of the posterior end of the vocal cord. Exactly opposite on the right side was a much smaller irregular elevation of similar appearance.

The larynx was otherwise normal except for a moderate injected appearance due to chronic irritation.

No acid-fast bacilli were found in the sputum and the blood Wassermann reaction was negative.

**Treatment**—The patient was advised to go on a regimen of silence, which was imperfectly carried out. Beyond the use of steam inhalations no medication was prescribed.

Little improvement being manifest in four weeks, direct laryngoscopy was done and the elevated mass removed from the left arytenoid with cupped forceps. There was no sensation of resistance when the tissue was being grasped or removed. Following this the voice was much improved though it continued to have a somewhat rasping quality and the other symptoms were also much improved.

Grossly the tissue was a soft reddish mass about 2 mm. in diameter.

The microscopic report was 'chronic granulation tissue beneath epithelium which is thickened.'

From the service of Dr. J. A. Cavanaugh at the Illinois Eye and Ear Infirmary, Chicago.

<sup>1</sup> Jackson on Chevalier: Contact Ulcer of the Larynx. *Ann. Otol. Rhin. & Laryng.* 27: 227 (March) 1928.

<sup>2</sup> (a) Jackson on Chevalier and Jackson on C. L.: Contact Ulcer of the Larynx. *Arch. Otolaryng.* 22: 1 (July) 1935. (b) Contact Ulcer of the Larynx. In Jackson, Chevalier and Coates: *G. M. Nose, Throat and Ear and Their Diseases*. Philadelphia: W. B. Saunders Company, 1929, p. 807.

<sup>3</sup> Jackson, C. I.: Etiology and Treatment of Contact Ulcer of the Larynx. *Laryngoscope* 43: 716 (Sept.) 1933.

<sup>4</sup> Peroni, Achille: Contact Ulcer of the Larynx. *Pathologic Observation Arch. Otolaryng.* 17: 741 (June) 1933. Imperatori, C. J.: Contact Ulcer of the Larynx. Report of a Case. *Laryngoscope* 43: 933 (Nov.) 1933.

Several weeks later the symptoms returned and examination showed substantially the original lesion.

Feb. 8, 1934, the small tumor mass was again removed. The pathologic report was the same as that following the first biopsy.

The patient again improved and in one month the larynx had assumed a nearly normal appearance. There appeared to be only a slight thickening of the mucosa at the site of the original lesion. By request the patient appeared at the clinic in February 1936. He was seen by Dr. Cavanaugh, who reports him quite free from his former symptoms, and on mirror laryngoscopy no sign of the former lesions could be seen.

#### COMMENT

The appearance of the affected areas in the larynx corresponded very definitely with one of the types of contact ulcer described by the Jacksons.

In the etiology the important factor is vocal abuse, as is illustrated by our case. In this connection a raspy, throaty method of voice production is usually noted in these cases. The rarity of contact ulcer in women is of interest, because they seldom have the raspy, throaty method of phonation.

The pathogenesis as conceived by Jackson is that the continual pounding of one arytenoid cartilage against the other constantly traumatizes the mucosa in a way that he metaphorically describes "as being between the hammer and the anvil."

The other points in the etiology, as well as the somewhat varying appearance on mirror laryngoscopy and direct laryngoscopy—the pathology, diagnosis and treatment—have been so thoroughly covered in the latest article by Chevalier and Chevalier L. Jackson that they will not be repeated here. The most consistent thing about contact ulcer is its unvarying location on the vocal process of the arytenoid cartilage.

Suffice it to say that Jackson regards vocal rest and reduction in the use of the voice of paramount importance in healing the lesion and preventing its recurrence.

The surgical treatment that is often necessary is the removal of the granuloma and in some cases the necrotic tip of the vocal process of the arytenoid cartilage, when this necrosis exists.

Contact ulcer is one of the conditions that should be considered in patients having long continued hoarseness.

500 North Ottawa Street

### PRIMARY PNEUMOCOCCUS TYPE XXII MENINGITIS

SIDNEY HIRSCH, M.D., CEDARHURST, N. Y.  
Senior Clinical Assistant Mount Sinai Surgical Outpatient  
Department, New York

Pneumococcus type XXII meningitis is of sufficient rarity to warrant the report of this case. In addition, the profession's lack of familiarity with this formidable infection makes this case of more than passing interest. There are very few conditions that require as much skill to establish an early diagnosis and that give so uniformly a fatal outlook.

#### REPORT OF CASE

H. B., a white man, aged 53, with a negative previous history, awakened Jan. 10, 1936, with a slight frontal headache. He took some acetylsalicylic acid and was able to go to business. The headache remained constantly during the day. Although it was mild he took 30 grains (2 Gm.) of acetylsalicylic acid during that day for relief. At 3 p.m. he was awakened from sleep with an excruciating frontal headache. A physician was called, who found it necessary to give one-fourth grain (0.016 Gm.) of morphine sulfate for relief. Examination was negative except for a temperature of 101° and it was the physician's impression that the patient was suffering from 'grip.' The following morning the patient was very somnolent, although easily aroused. The pupils were almost pin point and respirations were only twelve per minute. It was felt that his drowsiness was due to the morphine. During the day he brightened up, responded intelligently to questioning and had no real complaints. That night his temperature rose to 103° and catheterization was necessary for urinary retention. In view of a negative prostatic examination the retention was ascribed to the morphine. A careful examination of nose, throat, ears and lungs was negative.

The next morning, forty-eight hours after the onset of his headache, he became comatose and could not be aroused. At this time it was noted that there was very slight stiffness of the neck, with a questionable Kernig sign. The patellar reflexes were present and there was no Babinski sign. There was no Brudzinski sign. The nostrils were free of any discharge, there was no sinus tenderness and the ear canals and drums were clear. There was no rash. Arrangements were made for hospitalization.

That afternoon, about fifty hours after the onset, the patient was admitted to the Mount Sinai Hospital. A lumbar puncture showed purulent fluid under markedly increased pressure. The fluid proved negative for organisms on smear and culture. It consisted of myriads of polymorphonuclears but no organisms. The analysis of the fluid was as follows: sugar 25 mg per hundred cubic centimeters, globulin 2 plus, Wassermann reaction, negative, colloidal gold curve negative, examination for tubercle bacilli, negative. Antimeningococcus serum was given. The patient's condition rapidly became worse. A repeated neurologic examination just prior to the lumbar puncture revealed a marked stiffness of the neck with a definitely positive Kernig sign although absent patellar reflexes. Vesical catheterization revealed grossly hemorrhagic urine. A white cell count showed 36 000, with 94 per cent polymorphonuclears. A blood culture was reported negative. The following morning another lumbar puncture was done. The fluid escaped very slowly. A blockage due to adhesions being feared, a cisternal puncture was performed. Fluid here also escaped very slowly. A smear of this fluid was negative for organisms but a culture was later reported positive for pneumococcus type XXII. The patient's course continued rapidly downhill. His temperature gradually rose to 107.8 and he died seventy-two hours after the onset of his illness. No postmortem examination was obtained.

The question of the source of the pneumococci requires discussion. In view of a negative search of its usual foci, nose, throat, sinuses, ears and lungs, and a negative blood culture one may assume that the organism entered the meninges directly from the nasopharynx or from the sphenoidal sinuses.

#### SUMMARY

Primary pneumococcal meningitis is a rare disease but its occasional occurrence necessitates bearing it in mind in evaluating an acutely severe headache and somnolence.

609 Broadway

#### DIHYDROXY ANTHRANOL IN THE TREATMENT OF RINGWORM OF THE FACE, NECK AND ARMS (TINEA CIRCINATA)

MATTHEW MOLITCH, MD, JAMESBURG, N. J.

Ringworm of the face, neck and arms is commonly present wherever children congregate as in schools or institutions. In the New Jersey State Home for Boys we were constantly treating a dozen or more children with this skin disease. They usually come to the attention of the resident physician when the lesion is about one half inch (13 mm) in diameter and in only two out of several hundred were the lesions as large as 3 inches (76 mm) in diameter. Over a period of four years the skin lesions were treated with various ointments including ammoniated mercury and antiseptics such as gentian violet and tincture of iodine in varying percentages. With persistent daily treatments the lesions would clear up in from one to two weeks. As our newly admitted boys seldom had this skin infection it was evident that the disease was spread by contact or indiscriminate use of towels or clothing. Although every one of our more than 500 inmates has his own clothing and towels it is difficult to prevent interchanging as one can imagine.

It is evident that in order to decrease the incidence of ringworm among children it would be necessary to get some drug which would so affect the lesion as to render it sterile. With this thought in mind we tried dihydroxy anthranol<sup>1</sup> and found

that we accomplished our purpose.<sup>2</sup> At first we tried the 0.1 per cent ointment and found it nonirritating and only feebly effective. We then tried the 0.5 per cent ointment and found it both nonirritating and effective. One application caused within a few hours, a light purplish discoloration of the lesion and of the skin adjacent to its border. The next day the skin crinkled and on the third or fourth day it desquamated. No scars or other complications resulted in the twenty-four boys (aged from 9 to 14) treated. As not one additional new case appeared during the past six months it appears that the one application of the 0.5 per cent ointment was sufficient to sterilize the lesion and thus prevent the infection of other children.

The lesions were rarely larger than three-fourths inch (19 mm) in diameter and the two that were much larger required several applications. It is seldom that a child has only one lesion and it is quite usual to find one on the cheek and one on the neck. The diagnoses were made clinically, and no scrapings were made to discover the presence of tinea. The chemical compound dihydroxy-anthranol differs in its structural formula from chrysarobin only by the lack of the methyl group. It has been in use abroad for almost twenty years and in this country for several years. Beerman and his associates<sup>3</sup> who recently published a survey of the literature, found it particularly useful in psoriasis.

#### CONCLUSIONS

1 Twenty-four boys (aged from 9 to 14) with ringworm of the face, neck or arms were treated with dihydroxy-anthranol with excellent results.

2 One application of the 0.5 per cent ointment was sufficient to sterilize the lesions and to prevent the infection of other children.

3 The 0.5 per cent ointment was found to be nonirritating, and no scars or other complications resulted from its use.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS: HOWARD A. CARTER, Secretary

#### FISCHERTHERM ACCEPTABLE

Manufacturer: The Fischer Corporation, Glendale, Calif.

The Fischerterm is designed for medical and surgical diathermy. It is described as a four-tube short wave unit, having two rectifier and two power tubes. The wavelength is approximately 15 meters. The maximum input is said to be 900 watts. Since there is no acceptable method for measuring the output power of short wave machines this value is not given. The total shipping weight including pads and cover, is about 85 pounds. Both pad and cuff electrodes are furnished as standard equipment.

The circuit is of the push-pull Hartley type. By means of the rectifying tubes, direct current is supplied to the plates of the oscillator tubes. The temperature rise of the transformer, after the machine was operated at full load for two hours, came within the limits of safety prescribed by the Council.

An investigation of the unit was made and data were submitted for consideration in accordance with the Rules of the Council. The tissue heating effect in the human thigh was observed. Cuff electrodes were applied to the thigh, one posterior to the hip, the other anterior to the knee. Thermocouples were introduced into the deep lying tissues and also into the subcutaneous tissues, being placed midway between the electrodes and temperature readings were made immediately before and after the treatments during which the thermocouples were removed. After twenty minutes treatment the machine being operated at the patient's tolerance, the temperature rise and final temperature (average of four tests) were observed to be

<sup>1</sup> From the University of Pennsylvania School of Medicine and the New Jersey State Home for Boys.

<sup>2</sup> The Council on Pharmacy and Chemistry issued a preliminary report on Dihydroxy Anthranol (Anthralin) in THE JOURNAL, Jan. 5, 1935, page 48.

<sup>3</sup> Supplied in ointment form (Anthralin ointment) through the courtesy of Dr. G. W. Raiziss, of the Dermatological Research Laboratories, Philadelphia Division of Abbott Laboratories, North Chicago, Ill.  
<sup>3</sup> Beerman, Herman, Kulchar, C. A., Pillbury, D. M., and Stokes, J. H. Dihydroxyanthranol as a substitute for Chrysarobin. J. A. M. A. 104: 2628 (Jan. 5) 1935.

comparable to those temperatures obtained when using a conventional diathermy machine, which was used as a control.

The conventional diathermy currents were applied to the thigh by pad electrodes placed on the medial and lateral aspects of the thigh with approximately one inch of toweling used for spacing. The cuff electrodes were applied with three fourths inch toweling for spacing under the upper cuff and 1½ inch toweling under the lower.

The machine was used in a clinic acceptable to the Council, and the report of the previous investigation was confirmed. The machine gave satisfactory service when used for medical and

## Council on Pharmacy and Chemistry

### PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT

PAUL NICHOLAS LEECH, Secretary

### REFINED AND CONCENTRATED ANTIPNEUMOCOCCIC SERUM TYPE VII-LEDERLE

The Lederle Laboratories, Inc., presented Refined and Concentrated Antipneumococcic Serum Type VII (Lederle) for consideration by the Council. It is claimed to be useful in the treatment of pneumococcic pneumonias of this type, which is one of the twenty-nine groups of pneumococci previously considered to be group IV organisms. The identification of the individual types and the clinical use of the specific serums have been carried out under the direction of Park by his associates Cooper<sup>1</sup> and Bullova.<sup>2</sup> This identification includes them all as former group IV organisms but the following cross relations occur: II and V, III and VIII, VII and XVIII, and XV and XXV.<sup>3</sup> Some of the types have had other designations: type IV includes pneumococcus 10 of Griffith and group IIB of Robinson, type V includes IIA of Avery, type VI includes IIB of Avery, and type VIII includes a typical type III.

About 90 per cent of all pneumonias are attributed to the pneumococcus, and from 25 to 40 per cent of these have been claimed by various workers to be due to "group IV (types IV to XXXII)." In Bullova's<sup>2</sup> series of 1,000 cases, about 7 per cent were found to be due to type VII organisms. Incidence in other types in this series were:

Type I	253	Type VII	69
Type III	115	Type IV	65
Type VIII	98	Type V	60
Type II	79	Type XIV	45

Other twenty four types each less than thirty

Park, in commenting on Bullova's report<sup>2</sup> noted that

It seems strange that physicians do not use good antipneumococcic therapeutic serums when they are available. So far as I know of the frequent types type III is the only one in which serum may not be of benefit.

The New York City Department of Health, in record with this statement distributes its own types I, II, V, VII and XIV antipneumococcic serums. If the demonstration of these various types, the development of specific antiserums, and their application in those cases in which they are specifically indicated by standard methods of typing<sup>4</sup> lessen the mortality in pneumo-

### Clinical Cases Reported by Bullova and Recorded in Leaflet

	No of Cases	Treated	Not Treated	Per Cent Bact	Per Cent Mort
According to the leaflet	121 (104)	19			70
			85		25.9
According to the report	136	31		6	7.0
			105	12	21.0

coccic pneumonia, their usefulness could not be questioned. However, the present evidence for the effectiveness of type VII serums as well as for some serums of these less well known types seems somewhat meager.

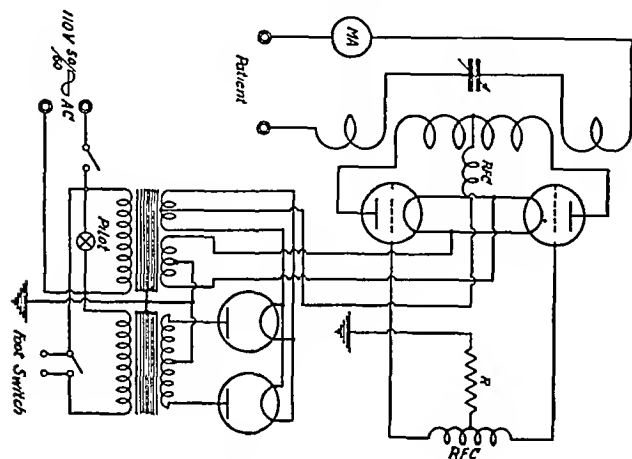
Bullova's report<sup>2</sup> on typing includes a series of clinical cases which is more extensive than the series recorded in the package enclosure submitted by the Lederle Laboratories, Inc.

<sup>1</sup> Cooper, Georgia M. and Walter, Annabel W. *Am J Pub Health* 25: 469 (April) 1935.

<sup>2</sup> Bullova, J. G. M. *The Reliability of Sputum Typing and Its Relation to Serum Therapy* J. A. M. A. 105: 1512 (Nov. 9) 1935.

<sup>3</sup> Zinsser, Hans and Bayne-Jones, Stanhope. *A Textbook of Bacteriology*. New York: D. Appleton-Century Company, 1935.

<sup>4</sup> Neufeld, F. and Etinger, Tulczynska, R. *Ztschr. f. Hyg. u. Infektionskr.* 112: 492 (1931). Sabin, A. B. *Immediate Pneumococcus Typing Directly from Sputum by the Neufeld Reaction* J. A. M. A. 100: 1584 (May 20) 1933.



Schematic diagram of circuit

surgical diathermy. Burns may occur when this machine is used, but they may be avoided by ordinary precaution; their likelihood to occur is much less than with conventional diathermy.

In view of the favorable report on the unit based on its performance when cuff electrodes were used the Council on Physical Therapy voted to include the Fischertherm in its list of accepted apparatus.

### EMERSON DIAPHRAGM RESPIRATOR, INFANT MODEL, ACCEPTABLE

Manufacturer: J. H. Emerson, Cambridge, Mass.

This infant respirator is a simple apparatus for producing prolonged artificial respiration. It is similar in operation to the adult model previously accepted by the Council (*THE JOURNAL*, Sept. 17, 1932, p. 995). It is sturdily built and its mechanical operation is satisfactory.

According to the manufacturer, 'when a patient is placed in the machine correctly and when the machine is operated as directed, alternate positive and negative pressures adjustable as to rate and amount are created within the machine causing the patient's chest to move as in natural breathing; if natural breathing is not functioning so that the patient will breathe unless the air passage to the lungs is obstructed.'

The machine is operated by an alternating or a direct current motor but by moving one lever hand operation is possible.

Features of this respirator are an all-leather diaphragm to create the pressure variations within the respirator, placed at the end of the machine where it will not catch liquids accidentally spilled in the respirator; a leather relief valve; a variable speed pulley to give a variable respiration rate adjustable during operation; and a dial pressure gage not materially affected by weather. In addition this infant model is equipped with a sponge rubber collar, a simple hood for use while administering oxygen while the machine is in operation and a tilting mechanism which inclines the body of the respirator and the head rest as a unit.

This respirator was used by the Council's investigator. He reported that the respirator is simple to operate and gives satisfactory service for the uses for which it is intended.

In view of the favorable mechanical and clinical performances of the unit the Council on Physical Therapy voted to include the Emerson Diaphragm Respirator, Infant Model, in its list of accepted apparatus.



It is further stated in the firm's package enclosure

Whereas the number of cases is small Bullowa's results are certainly suggestive of a definite therapeutic effect in the specific serum treatment of type VII pneumonias Cooper also states that the serum treatment of cases caused by type VII has been encouraging

The firm did not submit any bibliography for the preparation The Council agrees with Cooper that the results are encouraging, and to a lesser extent with the firm's statement that the results are suggestive of a definite therapeutic effect It is pointed out however that comparative percentages based on such a small series may be entirely misleading

Although the labels for the accepted types of antipneumococcic serum (Lederle) contain the statement that when they are given "early in adequate dosage the clinical results are striking," there does not seem to be sufficient evidence to warrant the use of a similar statement for the type VII preparation, even though the word 'striking' were to be replaced by 'most favorable'

In view of these factors the Council postponed consideration of this antiserum until these workers, or others, have extended the use of this agent to a larger series of cases, and authorized publication of the foregoing preliminary report

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH Secretary

**METYCAINE** (See New and Nonofficial Remedies 1935, p 56)

The following additional dosage form has been accepted

*Metycaine Ophthalmic Ointment 4 per cent* Metycaine 4 per cent in a base consisting of liquid petrolatum and wool fat with small amounts of paraffin white petrolatum and ceresin

**ANTIPNEUMOCOCCIC SERUM** (See New and Nonofficial Remedies, 1935, p 377)

The National Drug Co, Philadelphia

*Antipneumococcic Serum Felton Type I (Refined and Concentrated)*—Prepared by immunizing horses with intravenous injections of virulent and avirulent pneumococci and subcutaneous injections of the supernatant broth culture mediums in which the bacteria had been grown When test bleedings show the serum has reached a sufficient degree of potency full bleeding is made The serum is concentrated by a method similar to that used for antitoxins Marketed in packages containing 10 000 and 20 000 units of type I pneumococcus antibodies

**ANTIPNEUMOCOCCIC SERUM** (See New and Nonofficial Remedies, 1935, p 377)

The National Drug Co, Philadelphia

*Antipneumococcic Serum Types I and II Refined and Concentrated*—An antipneumococcic serum prepared by immunizing horses with intravenous injections of avirulent and virulent pneumococcus antibodies of types I and II The potency of the product is determined and expressed in terms of the unit of Lloyd D Ielton The serum is concentrated by a method similar to that used for antitoxins It is marketed in packages of one syringe containing 10 000 units each of pneumococcus antibodies of types I and II in packages of one syringe containing 20 000 units each of pneumococcus antibodies of types I and II and in packages of one ampule containing 20 000 units each of pneumococcus antibodies of types I and II

**DIPHThERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies 1935, p 395)

Lee Laboratories, Columbus, Ohio

*Diphtheria Toxoid Alum Precipitated Refined*—Diphtheria toxins are altered free from the bacterial cells treated with 0.4 per cent solution of formaldehyde and incubation is carried out at 38 to 40 C for from four to seven weeks in order to destroy all toxicity The absence of toxicity is determined by an intracutaneous test on guinea pigs and by the injection of 5 cc subcutaneously into guinea pigs The skin tests shall show no reaction in from forty-eight to seventy-two hours and the pigs receiving 5 cc shall show no symptoms of diphtheritic poisoning within a five weeks period After the toxins are shown to be completely detoxified and sterile they are precipitated with a 2 per cent solution of alum and allowed to settle The supernatant liquid is siphoned off and the precipitate washed with sterile physiologic solution of sodium chloride This washing process is repeated three times The final volume is then made up to the original volume of the toxin and merthiolate 1:5000 is added as a preservative The regulations of the National Institute of Health are adhered to in checking the immunizing value of every batch pigs are injected subcutaneously with 1 cc of the alum precipitated diphtheria toxoid At the end of six weeks they are bled and their serum must show at least 2 unit of diphtheria antitoxin per cubic centimeter Marketed in packages of one 1 cc vial and 1 cc vials and one 10 cc vial representing respectively one ten and ten immunizing doses

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

FRANKLIN C BING Secretary

### CELLU BRAND TINY BEETS, WATER PACKED

*Distributor*—Chicago Dietetic Supply House Inc, Chicago

*Packer*—Eugene Fruit Growers Association, Eugene, Ore

*Description*—Canned beets, packed in water

*Manufacture*—Beets harvested at the desired degree of maturity, are topped and trimmed, precooked to loosen the skin, mechanically peeled inspected, again trimmed, graded, again inspected and hand packed in cans The cans are filled with water, heated, sealed and processed

*Analysis* (submitted by distributor) —

	per cent
Moisture	87.2
Total solids	12.8
Ash	1.1
Fat (ether extract)	0.2
Protein (N X 6.25)	1.6
Crude fiber	0.9
Starch (diastase method)	7.1
Carbohydrates other than crude fiber (by difference)	9.0

*Calories*—0.4 per gram 11 per ounce

*Claims of Manufacturer*—Choice quality tiny whole beets packed without added sugar or salt For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition

### HAWAIIAN PINEAPPLE

1 MONOLA BRAND CRUSHED, SLICED

2 NEW LIBERTY BRAND CRUSHED SLICED

3 RED SHIELD BRAND CRUSHED SLICED

*Distributors*—1 and 3 Wm Steinhilber Company, Milwaukee 2 Prospect Supply Company, Yonkers N Y

*Packer*—Hawaiian Pineapple Co Ltd, San Francisco

*Description*—Canned pineapple packed in concentrated pineapple juice with added sucrose The same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8 1933, p 1106, and April 29 1933, p 1338)

### 1776 GEROLIUM BREAKFAST CEREAL

*Manufacturer*—The Shellbarger Mill & Elevator Company, Salina, Kan

*Description*—Wheat cereal containing the embryo and considerable of the bran

*Manufacture*—Wheat is cleaned and milled by the usual procedure Wheat middlings containing considerable of the bran and the embryo is packed in cartons

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	13.5
Ash	1.2
Fat (ether extraction method)	1.4
Protein (N X 5.7)	10.8
Crude fiber	1.3
Carbohydrates other than crude fiber (by difference)	72.0

*Calories*—3.4 per gram 97 per ounce

### ADVERTISING LEAFLET THE CANNED FOOD HANDBOOK

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SATURDAY, MAY 2, 1936

## THE PARATHYROID GLANDS AND DISEASES OF THE BONES

Evidence from a variety of experimental and clinical sources has established that the skeletal system is more than a mere inert supporting structure. Throughout life it serves an equally important function as a reservoir for calcium and phosphorus in which or from which these elements may be deposited or withdrawn according to the needs of the body. The amount of calcium and of phosphorus stored in the bones is dependent on a balance between two processes, the deposition of the quantity absorbed from the gastrointestinal tract and the withdrawal of these elements under the influence of the hormone secreted by the parathyroid glands. The importance of the first of these factors and the relation of vitamin D to the process has been appreciated for many years. The nature of the second process, however, is not so well understood. The parathyroid hormone appears to control the concentration of calcium in the blood by mobilizing this element from the bones as the need arises. Possibly the hormone exerts a direct stimulatory action on the osteoclasts of the bones but conclusive proof is still lacking. Some further insight into the mechanism of parathyroid hormone action has been supplied recently by a series of experiments<sup>1</sup> which seem to show that this substance plays a decisive part in the regulation of the calcium ion concentration of the blood. The removal of the parathyroid glands in experimental animals produced a consistent lowering of the calcium ion concentration of the blood, whereas the administration of parathyroid extract caused an increase in the value above the normal level. A practical method of determining the calcium ion concentration of the blood and a lucid discussion of the clinical significance of these values as an index to abnormal function of the parathyroid glands have been given by the same investigators.<sup>2</sup>

In view of the definite relation of the parathyroid hormone to the withdrawal of calcium salts from the bones, pathologic processes affecting one may be expected to produce profound changes in the other. Clinical results, reported in two recent articles,<sup>3</sup> sustain this expectation. One of the most striking example is found in the disease osteitis fibrosa (parathyroid osteitis, von Recklinghausen's disease), which is caused by a tumor of one or more of the parathyroid gland. This disease has therefore been classed as a condition of "primary hyperparathyroidism." The hypertrophy of the gland apparently results in an increase in the amount of parathyroid hormone secreted in the blood stream and thus produces demineralization of the bones. Gradually, generalized osteoporosis and skeletal deformities develop. Concrete evidence of the mobilization of calcium salts is obtained by a chemical analysis of the blood and urine. There is a significant increase in the total calcium and calcium ion concentrations of the blood and an accelerated rate of urinary excretion of the element, resulting in a negative calcium balance. A concomitant decrease in inorganic phosphate of the blood and an increase in serum phosphatase activity have also been described. Final conclusive evidence relating osteitis fibrosa to a hyperactivity of the parathyroid glands is the consistent effect of surgical removal of a proper amount of the gland, or the diminution of its activity by sufficient roentgen irradiation. This usually produces a decrease in serum calcium to normal values, an increased retention of calcium, and clinical improvement in the patient.

Not only may pathologic changes in the parathyroids produce changes in the bones, but also alterations in the structure and activity of the parathyroid glands may be encountered in certain bone diseases. This condition may be termed "secondary hyperparathyroidism." Typical examples of this relationship are the bone diseases rickets, "renal rickets" and osteomalacia, in which there is an enlargement of the parathyroid glands, presumably representing a compensatory response. Similar enlargement of the parathyroids and an accompanying hypercalcemia have been described in some cases of carcinoma with metastases to the bone, chronic nephritis, nephrolithiasis and multiple myeloma. In Paget's disease however there apparently is little involvement of the parathyroid glands, since these remain morphologically normal and there is no hypercalcemia. Studies in the clinic and on animals emphasize again but in a new direction the intimate dependence of metabolism on the activity of hormones. The day may not be far away when therapy will shift from symptomatic treatment to the more fundamental device of augmenting or reducing the supply of specific circulating hormones.

1 McLean F C, Barnes B O and Hastings A B. The Relation of the Parathyroid Hormone to the State of Calcium in the Blood. *Am J Physiol* 113: 141 (Sept.) 1935.

2 McLean F C and Hastings A B. Clinical Estimation and Significance of Calcium Ion Concentration in the Blood. *Am J Med Sci* 189: 601 (May) 1935.

3 Gutman A B, Tyson T L and Gutman E B. Serum Calcium, Inorganic Phosphorus and Phosphatase Activity in Hyperparathyroidism. Paget's Disease, Multiple Myeloma and Neoplastic Disease of the Bones. *Arch Int Med* 57: 379 (Feb.) 1936. Compere E L. Pathologic and Biochemical Changes in Skeletal Dystrophies. Analysis of Results of Treatment of Parathyroid Osteosis. *Arch Surg* 32: 73 (Feb.) 1936.

## METABOLISM DURING PREGNANCY

One of the phenomena of life that early attracted the attention of scientific investigators is the reproductive cycle. A vast amount of literature is concerned with the metabolism during pregnancy and the metabolic relationships between the fetal organism and its maternal host. Only during the last ten years has renewed interest in this field, supplemented by more modern analytic methods, yielded interesting data of the type necessary for meeting the fundamental problem of the health and the preservation of the mother and the welfare of the infant. The work being conducted in the Research Laboratory of the Children's Fund of Michigan in Detroit and the studies initiated at the University of Chicago and actively continued at the Oklahoma Agricultural and Mechanical College, are worthy examples of well directed efforts to secure data regarding metabolism during pregnancy.

Several modes of approach have been utilized in the past to determine the nutritional and dietary needs of human pregnancy. Studies have been made of the dietaries of healthy women who are showing a normal reproductive cycle. The chemical alterations of the blood of the mother during pregnancy and under various physiologic conditions have been determined and attempts made to interpret the data from the point of view of metabolic significance. Also, it has been possible to obtain interesting information by the quantitative analysis of human fetuses at varying stages of development, thus information regarding the nature of the materials that must be supplied to meet the nutritional needs of pregnancy are obtained. The fourth method, and the one that has been employed in the more recent investigations of metabolism during pregnancy, utilizes the classic technic of balance experiments. Exact chemical analyses of the materials ingested and of the excreta show the quantities of the various substances, either inorganic or organic, that are retained for use during the period under investigation. Comparison of this information with the balances of nonpregnant subjects under optimal conditions yields valuable information regarding the total dietary requirements of maternity, including those of the mother herself. These include the needs arising from the added tasks of reproduction, fetal development and the necessity of the organism to provide for lactation. There are now available suggestive experimental data<sup>1</sup> bearing on balance studies during pregnancy for calcium, phosphorus, sodium potassium magnesium sulfur, chlorine iron and nitrogen. The results indicate a high retention of calcium and to a less extent of phosphorus and of magnesium. The storage of nitrogen tends to be low and is definitely inadequate for iron. The Oklahoma studies revealed an apparently high storage of calcium nitrogen and iron in early pregnancy quite

independent of and far in excess of fetal needs when dietary conditions were favorable for storage. In these instances there was no evidence of increased retention which may be observed in women receiving deficient diets during late pregnancy and corresponding to the period of high fetal demand.

The Detroit group<sup>2</sup> has recently presented a case study of the continuous nitrogen utilization of a multipara which is particularly noteworthy for the length of the period of observation and its completeness. The subject had been under more or less close observation for eight years but the present study covered the last 145 days of gestation, parturition, the puerperium and the first eight weeks of lactation. During the last 145 days of gestation, 377 Gm of nitrogen was stored by the mother, during delivery loss of body fluid and the fetal membranes accounted for 55 Gm of nitrogen, during the lying-in period 45 Gm of nitrogen was lost, and 38 Gm was secreted into the milk in the last forty-three days of observation. There was thus a net gain to the maternal organism of approximately 250 Gm of nitrogen during the period of observation. This study provides a striking example of the material gain to the maternal organism resulting from a completed reproductive cycle.

Dogmatic conclusions cannot be derived from the experimental results that have been obtained thus far from balance studies. There is an evident variation in the metabolism among individuals of an experimental group as well as in the same person at different times. Nevertheless, the results do offer definite indications of some of the significant nutritional needs of pregnancy. When supplemented by further studies they will contribute much to the sum of our knowledge of the metabolism of women during the reproductive cycle.

## CRIMINAL BEHAVIOR IN THE LATER PERIOD OF LIFE

Crime, it has been generally observed is a form of behavior most common to the young. According to Schroeder,<sup>1</sup> only three references to medical studies of the older offenders against the law have been made over the last fifteen years. The material from which Schroeder's studies were made was collected from examinations of prisoners committed to the Illinois State Penitentiary convicted of felonious crimes. Four hundred and eighty-six prisoners were investigated unselected except that one half were under and the other half over 40 years of age. Those over 40 constituted 10.2 per cent of a total of 1,083 serial admissions. All crimes were classified as either robbery, larceny, burglary, murder, fraud or sex. Less than 7 per cent which did not fall in any of these groups, were classified as miscellaneous. The larger proportion of crimes were distributed among the murder, fraud

<sup>1</sup> Summary of this work in which earlier references will be found is given by Coons, C. M. *Studies in Metabolism During Pregnancy*, Bull. 223, Agricultural Experiment Station, Oklahoma Agricultural and Mechanical College.

<sup>2</sup> Hether, Helen A., Hummell, Frances C., Erickson, Betty A. and Macay, Icie C. *J. Nutrition* 10: 5-9 (Dec. 10) 1935. References to earlier paper in this series will be found here.

<sup>1</sup> Schroeder, I. J. *Criminal Behavior in the Later Period of Life*, Am. J. Psychiat. 92: 915 (Jan.) 1936.

and sex groups, in contrast to the distribution in a comparable group including all ages. In the murder group the proportion was two and one-half times larger than that for the same crime for the all age group, whereas in fraud and sex the proportion was four times greater. The native born white made up the larger proportion of the group studied, representing 60 per cent. Eighteen and nine-tenths per cent were of foreign birth, in contrast to a much lower percentage of this group among admissions of all ages. Nineteen per cent were native born Negroes.

The educational achievement was only approximately determined, as it depended on the statement of the prisoner himself. There was a limitation of schooling, only fourteen men had any college training. Thirty-three reported high school training. The largest group (133) fell in the range including the fourth to the eighth grade. Thirty-eight had achieved only the primary grades, and twenty-five showed no schooling whatever. The intelligence level was based on the measurements obtained by the use of the Army Alpha group test, the use of the individual Stanford-Binet test for those falling below the dull group, and the use of the performance tests for the illiterate. When compared with a group of prisoners of all ages, the special group studied was found to have almost four times as many mental defectives as the general group. Furthermore, this large proportion of defectives belonged primarily to sex and murder groups. The fraud group showed a distinctly higher intelligence level. Psychiatric examination indicated that 37.4 per cent fell in the group classified as inadequate personality, 23 per cent in the egocentric group and 11.9 per cent in the unstable group, 13 per cent were found to show signs of psychopathy, of which the largest proportion was psychopathic personality. Seven were found to be psychotic and a like number were classified under alcoholic deterioration. Five were psychoneurotic, three showed senile deterioration and two were epileptic, 9.4 per cent were found to be free from personality fault. Syphilis of the central nervous system was found in two cases, and four were left undiagnosed.

It is difficult in many instances to evaluate the previous criminal record. Except for confinement within a penitentiary or reformatory, serious doubt must be raised as to the validity of a history of previous arrests and convictions. For the group over 40 years of age 51.9 per cent had a record of previous convictions of one form or another, whereas in a similar group of unselected prisoners under 40 years of age 65.1 per cent showed a previous criminal record. Also the further significance of a previous criminal record and types of crime was studied. The relatively small number of prisoners in the older age group convicted of robbery, larceny and burglary showed a high percentage of previous penitentiary sentence. The murder, fraud and sex groups showed only half as great a frequency of previous sentence.

From this study it seems fairly evident, according to Schroeder, that in the main persons who commit crime after 40 years of age represent a distinct group. They tend to commit crimes of violence, such as murder and sex crimes and also fraud. Those who commit the first two crimes tend to be as a group relatively free from early records of delinquency and crime. Of the group convicted of fraud, the criminal behavior tends to be a continuation of a pattern established at an earlier age. The smaller numbers whose crime is primarily for gain tend to show an extensive earlier criminal record. The older group studied included many men coming from foreign countries. Possibly their inability to adapt themselves may be expressed in the violence of their behavior. They are on the whole distinguished by a general lowering of intelligence, although this may be in large part determined by the method by which they are measured. They show a greater limitation of educational achievement, which may perhaps be explained by a relatively greater limitation of their opportunities, than that of the younger criminal of today. The fact that there is such a marked drop in previous criminal record after the 30 year group must be considered particularly significant. The conclusion, however, that crime ends with the beginning of the second period of life cannot be definitely shown by this study. There is definite evidence, Schroeder believes, that factors within the individual, perhaps constitutional in character, do determine not only the distinctive character of the criminal after 40 but also the relative cessation of criminal activities at about the age of 40. Further studies along these lines should eventually do much to clarify the medical factors surrounding the criminal activity of the later years of life.

## Current Comment

### THE PATHOLOGY OF IDENTICAL TWINS

The possibility of determining the relative roles of heredity and environment based on a study of identical twins has not yet been fully explored. De Lange<sup>1</sup> has recently recorded three abnormal states in three pairs of identical twins. The first pair of boys were 5½ months old when studied. They had a maternal aunt with pyloric stenosis who was under the care of the author in 1921. Both children also had pyloric stenosis, for which it was necessary to perform the Rammstedt operation. The subsequent course was good. The second pair of identical twin boys, within the first month of their lives, developed bilateral scrotal hernia. The author was able to find only one other observation of bilateral hernia in identical twins, but the original publication of this case could not be consulted. The final case was that of twin girls, one of whom was admitted to the hospital on account of an acute glandular swelling at the angle of the jaw at the age of about 9 months. Both children had natiform skulls with

<sup>1</sup> De Lange, Cornelia. A Contribution to the Pathology of Identical Twins. *Arch. Dis. Childhood* 11: 39 (Feb) 1936.

some hydrocephalus, although these changes were more severe in one of the pair than in the other. This condition seemed to be in no way related to prematurity, syphilis or rickets. Further studies of pathologic disorders in monozygotic twins will of necessity be slow. Nevertheless, it is to be expected that a vast amount of light will eventually be thrown on the relative roles of hereditary and acquired diseases by this means.

## Association News

### RADIO BROADCASTS

The American Medical Association broadcasts over WEAf, the Red network instead of the Blue as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern daylight time (3 o'clock central standard time, 2 o'clock mountain time 1 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

**Red Network**—The stations on the Red network of the National Broadcasting Company are WEAf, WEEI, WTIC, WJAR, WTAG, WCHS, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

**Pacific Network**—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The last two programs of the present series are as follows:

May 5: Maternal Care. W. W. Bauer. 15 D.

May 12: Medicine Marching Forward. W. W. Bauer. 15 D.

A new series is under consideration for the autumn and winter of 1936-1937.

### BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session.

#### NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company:

May 11, 3:30 p. m. "Nutrition and the Future of Man" by Dr. James S. McLester, President of the American Medical Association. Fifteen minutes.

May 12, 3 p. m. "Medicine Marching Forward." The regular dramatized program "Your Health" (originating in Chicago) based on papers or exhibits presented at the convention. Dr. W. W. Bauer. Thirty minutes.

May 13, 11 a. m. An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes.

#### COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System:

May 11, 1:30 p. m. An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2 p. m. A news broadcast outlining the main events of the convention. Dr. W. W. Bauer. Fifteen minutes.

May 15, 8:45 p. m. "Medicine Yesterday and Today." An interview with dramatizations (originating in Chicago) based

on papers or exhibits presented at the convention. Dr. Paul A. Teschner and Columbia Broadcasting System commentator. Thirty minutes.

The hour given is central standard time, eastern standard time is one hour later, mountain time one hour earlier, and Pacific time two hours earlier. Daylight saving time in each locality is one hour earlier.

### ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Thirty Second Annual Meeting held in Chicago Feb. 17 and 18, 1936

(Continued from page 1501)

DR. IRVIN D. METZGER, Pittsburgh, in the Chair

#### THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 18—AFTERNOON

#### Narcotic Legislation in Relation to Medical Licensure

DR. WILLIAM C. WOODWARD, Chicago. Authority over narcotic drugs is divided between the federal government and the state governments. Under the constitution the federal government has exclusive authority over the importation and exportation of narcotic drugs, interstate commerce in narcotic drugs, narcotic drugs in the mails and narcotic drugs in the several areas which under the constitution, are under exclusively federal control. The federal government has authority, too, to levy taxes on narcotic drugs, as it has done under the Harrison Narcotic Act, but the several states also levy on them. Finally, under its treaty-making power the federal government has authority to make and enforce such laws as it can constitutionally enact and as are necessary to carry into effect any treaty that the federal government can constitutionally make for the international control of narcotic drugs. All other authority over narcotic drugs is vested in the several states.

The only federal law with which we can now concern ourselves is the Harrison Narcotic Act. Physicians generally do not seem to understand that legally the Harrison Narcotic Act is only a tax measure. Under the Harrison Narcotic Act the federal government does not undertake to say who may and who may not manufacture, sell and use narcotic drugs. It goes no further than to lay down certain requirements with which those who manufacture, sell and use such drugs must comply—all such requirements being in theory at least, necessary for the collection of the tax imposed by the act. A person authorized by the law of the state to manufacture, sell or use narcotic drugs is entitled to register under the Harrison Narcotic Act, and the federal government cannot deny, suspend or cancel his registration.

The right to use narcotic drugs professionally is incident to the right to practice medicine, dentistry and pharmacy. The licensing boards that issue, suspend and revoke licenses to practice the professions named are therefore responsible for the fitness of their licensees to use narcotic drugs in the course of their practice. It is the duty of the licensing agency to determine before a license is issued whether an applicant is or is not fit to be licensed. Its duty is not as clear with respect to the collection from day to day of evidence of the fitness or unfitness of persons already licensed that it is its duty to supervise the professional conduct of its licensees. Theoretically, the licensing agency should assume that function. Practically, probably no such agency has been provided with a field force large enough to enable it effectively to do so.

The United States Bureau of Narcotics is in a strategic position for the discovery and reporting of narcotic addiction or at least of addiction to opium and coca leaves and their compounds and derivatives. This bureau has inspectors scattered throughout the United States primarily for the enforcement of the Harrison Narcotic Act and its inspectors necessarily learn the identity of drug addicts and of persons convicted of violation of the act. In 1933 the Bureau of Narcotics reported seventy-two physicians as narcotic addicts to the medical licensing boards of the states. The cases of 248 physicians were pending at the beginning of the year. Two

hundred and fifty-six reported cases of addiction were pending before medical licensing boards at the beginning of 1934. To this number the Bureau of Narcotics added 126 cases during the year. Three hundred and eight cases remained unacted on at the termination of 1934. Action by medical licensing boards was not satisfactory on reports by the Bureau of Narcotics of cases in which physicians had been found guilty of violations of the Harrison Narcotic Act. At the beginning of 1933 212 cases were pending. Eighty-eight were reported during the year. There remained unacted on at the close of the year 241 cases.

Three hundred and thirty-nine cases were pending before medical licensing boards during 1934 in which licentiates had been convicted of violation of the Harrison Narcotic Act. In nineteen, or 5.6 per cent, licenses were revoked, in seven, or 2.1 per cent, licenses were suspended, in nineteen, or 5.6 per cent, licentiates were put on probation, in four, or 1.2 per cent, licentiates were admonished, and fifteen cases, or 4.4 per cent, were dismissed without disciplinary action. There remained at the close of the year 275 cases, or 81.1 per cent, not acted on.

These figures must not be construed as evidence of incompetence of medical licensing boards or of unwillingness on the part of boards to do their duty. However, it should certainly have been possible to dispose of a larger number of cases. Hardly any of the medical licensing boards of the country, probably none of them, are provided with inspection forces sufficient to enable them to supervise the activities of the physicians whom they license. For the evidence necessary to enable them to do so they must rely on outside agencies for information and the duty, if any, of such agencies to furnish information is in general poorly defined. In twenty-four states the duty of enforcing the narcotic law is placed on the state health agency, in nine states on the state board of pharmacy, in three states on the licensing board or department, and in one state each on the commissioner of agriculture, the board of public welfare, the narcotic drug board, and the department of justice and safety. In ten states the duty of enforcing the act is not specifically assigned to any state agency. The uniform narcotic drug act, which has recently been enacted in substantially its original form in twenty-three states and in modified forms in five others, seeks to mitigate the bad effect of the inadequacy of inspection forces by providing specifically that all peace officers within the state and all county attorneys shall cooperate to enforce its provisions. To improve the situation further the uniform state narcotic drug act provides that, on the conviction of any licensed person of any violation of it, a copy of the judgment and sentence and of the opinion of the court shall be sent to the board or officer by whom the convicted defendant has been licensed to practice his profession or to carry on his business, and that the court may in its discretion suspend or revoke the license of the convicted defendant.

Strange as it may seem, physicians and pharmacists in some jurisdictions have objected to vesting in the courts authority to suspend or revoke licenses. The evidence in the case is before the court, and action can be economically, promptly and effectively taken. The licensing board is constituted in effect an appellate court, something superior to a trial court. What justification there can be for the delay and annoyance, trouble and expense of an additional hearing before disciplinary action is taken, it is difficult to conceive. Probably failure of prompt action in some cases lies in the fact that action must be taken by one board made up of men who are serving only on a part time basis, who are expected to function for an entire state. When they sit as a court they may have to sit in parts of the state remote from their homes and their places of practice, otherwise it is necessary to bring witnesses long distances to the central point at which the board is sitting. The taking of evidence by depositions in a few cases may help the situation but it cannot cure it.

#### Enforcement Procedure

Dr. THOMAS J. CROWE, Dallas, Texas. The Texas annual registration law provides that on January 1 each year all licensed physicians shall pay a registration fee of \$2, which if not paid within sixty days automatically suspends the delinquent practitioner's license until all fees in arrears and a penalty of

\$1 are paid, when the license is automatically reinstated with any other requirement. Besides giving the board the pre-address and professional record of every licensed practitioner the state, annual registration produces a fund of about \$100 a year with which to enforce the law. As a protection against unscrupulous characters, we require all application forms to be completely executed and certified before a notary public. Applications from foreigners shall bear the signature and seal of the authoritative officer of the college of graduation and his signature and seal shall be authenticated by the United States consul of the district in which the college is located. The Texas board commenced investigations in 1932 with one operative in the field. It now has four. That we may get the greatest number of prosecutions with the least expenditure of money and time we have instructed the members of our county medical societies when reporting violations, to give the full name and correct address of the violator and the names and addresses of several persons treated by him within the two years who paid all or part of his fee for service. All such information in hand the investigator without disclosing the name of his informant, may go direct to the persons treated in a day or two get information on which to file complaint for prosecution. If one who has been convicted of violation of the practice act resumes illegal activities, an injunction procedure may be commenced against him which if granted restrains him from future practice or subject him to the penalty for contempt of court, which is severe. Since the most troublesome type of violator was trained mostly in advertising and how to evade conviction, "great care must be given to the selection of jurors" for the trial of a practice act violation in order to prevent the defendant's counsel getting as many as possible of the violator's patrons or friends on the jury to vote for acquittal or hold for mistrial. Our investigators are required to report by postal card at the end of each day, stating where they have persons interviewed on the date of card, and where they may be reached, if needed, on the following day. Membership in cooperation with better business bureaus has enabled us to contact municipal authorities, civic, social, school, fraternal, police and religious organizations and even the newspapers and principal hotels in helping us to keep out of Texas medical false free lecturers and other impostors. We circulate the names of chambers of commerce of Texas, our district or county attorneys, sheriffs and county medical societies of the appearance in the state of undesirable characters. The newspapers are informed as to the practices of such impostors. When possible we send photographs, descriptions, finger prints and other means of identification. Mr. J. J. Biggins, supervisor of personnel for the twelfth district of Texas, sends his inspectors to hearings of complaints against physicians, and he will not issue a narcotic permit to an applicant whose name does not appear in our directory until assured by the board that he is licensed and has paid the annual registration fee. This cooperation made our registration 100 per cent effective, for which we are duly thankful. Our board's address is on the mailing list of the Federal Trade Commission, in order to get its monthly reports, from which we transfer to suitable cards, for filing the commission's 'cease and desist,' 'misbranding' and 'false orders' to manufacturers, distributors and peddlers of misrepresented medicinal preparations and appliances. We find the government's orders very convincing and effective in stopping the advertising and marketing of such worthless products. Every state board should have a file of this kind. We maintain a "crooks and convictions" file, containing information on the holders of fraudulent medical credentials. All secretaries should maintain such a time and trouble saver. It will compensate many times for the trouble of keeping it up to date. We have five complete records of all registered practitioners in Texas—the annual directory, by serial number of license certificates by serial number of annual permits, a permanent 100 subdivided book, and last most convenient and decidedly most used, a card system in ten drawers of a large, fireproof safe containing 7,000 cards indexed in 480 subdivisions, front of each of which bears the full name and address of registrant and the back his complete, historical record. It can make a complete report of any physician in the state,



telephone or otherwise, in less than one minute. In the same safe we have a file of deceased physicians and another of those who are retired.

DR HERBERT M. PLATTER, Columbus, Ohio. In Ohio our enforcement division consists of two investigators at present who have served the department for more than fifteen years. They are thoroughly familiar with the decisions of the courts and know what evidence is necessary to obtain before the submission of a case to the prosecuting attorney of the county in which the offense has been committed. During the course of a year these inspectors investigate about 600 cases. The expense for this service approximates \$8,000. Ohio does not have an annual registration law. We enjoy the cooperation of other state departments, the state medical association, local medical societies, better business bureaus and the federal narcotic department. The usual offenses against medical practice acts in the several states are classified as misdemeanors. Too frequently the trials are postponed repeatedly because they are included in heavy criminal dockets and never reached, even though strenuous attempts are made to have them brought to trial. Our greatest deterrent in Ohio has been delay. This has been particularly evident during the past six years. The number of convictions obtained has fallen off, too many fines have been suspended by the courts and too many cases remain pending in spite of our attempts to bring them to trial. Many provisions in our medical practice acts should be repealed and an honest effort put forth to develop a single standard of qualification for all who would practice the healing art. Great Britain points the way in this particular by giving legal recognition to one type of practitioner. In spite of our strenuous efforts to enforce our laws, the results have not been satisfactory, largely, I believe, because the idea of toleration is firmly fixed in the American social order.

#### Aggressive versus Passive Attitudes of State Board Members

DR ARTHUR C. MORCAN, Philadelphia. The objections against enforcement of medical laws in this country have come from the unlearned or poorly trained cultists or from those who, not having been successful in gaining admission to standard medical colleges, gravitate to the pseudoscientific groups. By far the greater number of students who have gone or are now abroad to secure medical degrees should be looked on with careful scrutiny, if not suspicion. The individual member of a state board must adjust himself to the local situation so far as his personal activity is concerned. He must remember that majority vote in committee or board is the rule. There should be no back door entrance to any state licensure. Applicants coming from foreign schools manifest an eagerness to secure licensure without formally complying with the laws of a state, sometimes making an effort to exert political pressure to accomplish their ends. These procedures are illegal. Politics should not have any influence in the make up of the personnel of state medical boards. In the larger sense politics as a constructive, ethical procedure should have full sway. The personnel of a board of medical examiners should be of such stable character that, if proposed changes in the medical practice act are under contemplation, their advice will be eagerly sought for by legislative committees.

#### Foreign Medical Credentials

DR CHARLES B. PINKHAM, San Francisco. Experience has taught the majority of executive officers of medical examining boards in the United States that credentials from foreign medical institutions cannot always be taken at their face value. Wise is he who without exception meticulously verifies foreign medical documents. Under no circumstances should physicians from abroad be licensed until their credentials have been verified and the identity of the holder established. Extinct in America has become the former practice of flitting from one medical college to another, leaving behind a record of failures in a number of subjects, which had the student remained in attendance would have compelled his repeating the entire course of study for that year. In foreign countries it is not uncommon to find that a medical student has attended as many as six different universities during his course of study. Because German universities keep no check on daily attendance of their

students, it is practically impossible to determine whether a student who has attended several universities during his medical course has completed the required course in one university before he enters another. The political turmoil in both Germany and Russia makes satisfactory verification of medical credentials from either of these countries practically impossible. Even the American consul on whom we often call for assistance frequently is unable to obtain satisfactory verification of foreign credentials. Conditions in Germany may be no different from those existing in other countries including the United States, so far as fraudulent diplomas are concerned yet the difficulty involved in verifying credentials from German and Russian universities should cause the executive officers of all medical examining boards to exercise extreme caution in verifying credentials. This is no easy matter. First must be determined whether such an institution exists as that named on the credentials under investigation.

That it is not difficult to obtain a medical diploma from reputable foreign medical schools was demonstrated by Ray Beeman Horton, erstwhile Missouri veterinarian, who possessed assertedly irregularly issued diplomas of the Kansas City College of Medicine and Surgery and the St. Louis College of Physicians and Surgeons. Both institutions were of such ill repute because of their wholesale issue of questionable diplomas during 1921 to 1925 that the state of Missouri in 1927 revoked the charter of both these schools. Horton, assertedly accused of procuring unworthy persons the right to examination by the State Board of Health of Missouri, was said to have obtained money in excess of \$1,500 for Missouri physician and surgeon's licenses from those who held diplomas of the aforesaid schools. Another instance demonstrating that foreign medical diplomas may be obtained after attending a course of less than one year came to the attention of the California Board of Medical Examiners some years ago. A graduate of a Los Angeles Osteopathic School reported he had entered the University of Berne, Switzerland, in October 1923 and obtained the degree "Doctor of Medicine" from that institution July 16, 1924.

An amendment of section 10 of the California medical practice act requires that every graduate of a foreign medical school who applies after Sept. 15, 1935, for written examination for a physician and surgeon's certificate must file in addition to the medical education requirements already established the following documentary evidence satisfactory to the board of medical examiners: (1) a diploma from an approved medical school, (2) a license to practice medicine in the foreign country wherein is located said medical school, (3) that he has completed a one year internship in an approved hospital in the United States, or (4) that he has completed the senior or fourth or final year in an approved medical school in the United States. Every graduate of a foreign medical school who seeks to qualify for a California reciprocity certificate on a license issued by a sister state after Sept. 15, 1935, must fulfil the requirement just stated. By this amendment the California Board of Medical Examiners believes will be solved many of the uncertainties regarding the sufficiency of the applicant's medical training. As well will this additional educational training serve as a protection to public welfare by augmenting the standard of professional services rendered.

#### The Basic Science Law in Nebraska, After Eight Years

DR HENRY J. LEHNHOFF, Lincoln, Neb. This article was published in the *American Medical Association Bulletin* 31:54 (March) 1936.

#### The Importance of Introducing Psychiatry in Medical Licensure

DR FRANKLIN G. EBAUGH, Denver. I feel that it is no imposition on the candidate for licensure to require of him some knowledge of the physiology which relates somatic function to mentation. Cannon observed the following effects of one emotion—fear—in a cat frightened by a barking dog: (1) increased pulse rate and blood pressure, (2) increased sugar in the blood, (3) increased epinephrine in the blood, (4) decreased coagulation time, (5) increased muscular tone, (6) increased motor activity and restlessness, (7) deep and rapid respiration, (8) dry mouth, pilomotor and vasomotor activity, (9) dilatation of the pupils, (10) defecation and urination, (11) immobility of the stomach. Emotions of such wide influence should be

studied for the conditions under which they occur, the factors which determine them, the manner of control, and methods of prevention. It is not only a question of knowing anatomy, neurology, pathology, biochemistry, physiology, endocrinology or other basic sciences that we want to impress on the student but rather that a correlated understanding of them is essential to the practice of general medicine. These isolated facts must be brought into relation with the complaints of the patient so that therapy will be intelligently directed. There is no other course or discipline in the curriculum which can teach this correlation to more advantage than psychiatry, which deals daily with the functional expression of psychobiologically determined disorders.

Psychiatry itself will benefit by including psychiatric questions in the state board examination. Those schools which are now neglecting thorough psychiatric training will make greater efforts to improve their curriculum. In this way the general level of psychiatric teaching will gradually improve. In time there will develop to the advantage of all concerned a more intelligent agreement as to what constitutes standard psychiatric practice, at the same time avoiding a crystallized uniformity. The student, conscious of his obligation, will make a more determined effort to master the material. Those students who already see the importance of this field will be encouraged to acquire a more extensive acquaintanceship to the mutual benefits of themselves and their patients. Well chosen questions will make information pertinent to this field more readily available, that is, examinations may have a teaching function by stimulating interest in the subject. Public examination will help destroy the mysticism and vague thinking that surround much lay and medical discussion of psychiatry.

The present status of psychiatry with regard to licensure may be easily summarized by stating that Massachusetts is the only state requiring the subject by statute. For several years, questions in psychiatry have been included in the Colorado state board examination in symptomatology. The National Board of Medical Examiners does not require an examination in psychiatry, but this deficiency has been discussed and will probably be remedied. The United States Public Health Service may include psychiatric questions in the examination for general medicine. In West Virginia, questions on psychiatry may be included in the examination on "special medicine" but so far I have seen no evidence that this is done. In several central European countries the licensure proceedings include a separate examination in psychiatry.

Many state board secretaries have stressed the fact that legislative enactment is essential to changing the licensure examination. No doubt this will be possible when the scope of psychiatry is better understood. There has also been an erroneous impression present in the minds of some of the secretaries that lack of adequate teaching caused the omission of psychiatry from licensure procedure. Psychiatric teaching is now developing on a firm footing in the majority of medical schools.

Since it is the privilege of the medical profession to encourage the highest possible standards in the medical school and in licensure, and since a large percentage of medical problems are psychiatric and can be effectively treated by psychiatric methods, it is recommended that the medical graduate of the future should be required by licensure to acquire this training in order that he may render the most proficient service possible. The insertion of incidental questions of psychiatric import in the general medical examination will help meet this need.

#### DISCUSSION

DR IRVIN D. METZGER, Pittsburgh. Mr. Anslinger stated that one of the greatest leaks in narcotics was through the profession of medicine. The members of the department in Washington felt very keenly the fact that they could not be more effective in dealing with physicians because of the apparent indifference of state boards. He told me that less than half a dozen boards are now cooperating with the department with respect to the handling of doctors who are misusing the drugs. The control of physicians in their practice is quite as important as the licensing of physicians, whether in respect to narcotics or otherwise. In Pennsylvania we have a fortunate situation in that we have a bureau of drug control that acts as the advance

agent in bringing cases before us, and we accept court decision, court records, as evidence of conviction, thereby we need not conduct cases.

DR WALTER L. BIERRING, Des Moines, Iowa. The committee consisting of Dr. James N. Baker, J. H. J. Upham and myself to advise the Council on Medical Education and Hospitals as to the attitude of the Federation of State Medical Boards with reference to the procedure to be followed in announcing the results of the survey, report that we presented our statement to the Council in the way of an opportunity to coordinate these three agencies, that the addition of a semiofficial body like the Federation of State Medical Boards would give it some official status, and that a report backed by these three agencies, the educational bodies, the licensing federation and the medical profession, represented by the Council, would do much toward unifying the purpose. We were assured that that was what the Council had in mind all the time. We were assured that the Council expected the Federation of State Medical Boards to take part in these inspections, in those that were still to be made and those that had been done and were to be considered, the Council expected to complete this survey by June, it was expecting, further, to have a meeting in the fall, and it was pleased at the thought that a committee from this body would meet with it at that time. The committee therefore moves that the incoming president appoint a committee of three, of which the president shall be a member, to confer with the Council on Medical Education and Hospitals, with the Association of American Medical Colleges, at the several conferences that are to be held in the final determination of this present movement.

DR J. EARL MCINTYRE, Lansing, Mich. With reference to Dr. Woodward's paper, I think we probably all agree that the narcotic legislation is sufficient, it is a matter of interpretation, and the remedies that Dr. Woodward suggests are not so easily accomplished. Michigan has its problems. We find that the attitude of the department to the bureau has changed in the past few years, but formerly it was very arrogant, and the manner in which they treated the profession created antagonism. Our law does provide that we may accept the findings, a certified copy of conviction by the court. But if this is not done, we have no monies for investigating services. We find it difficult to procure affidavits against doctors on whom there are complaints. I made a trip of 300 miles in the upper portion of the lower peninsula to investigate a government complaint. I found in this little town that the doctor was universally loved, and, if he used narcotics, no one would admit it. We could not do anything about that case. It is difficult in Michigan to accomplish anything on those complaints, because the courts do not accept affidavits. The witnesses who complain must appear in court. Consequently we have the number of cases that have been reported with no action of the board because we cannot secure legal evidence on which to act. We have the same difficulties in procuring evidence for prosecution in Michigan as they have in Texas. We find the same difficulty in the prosecution of cases because the Michigan law specifies that it is the duty of the prosecuting attorney to prosecute all violations of the act in the county in which they occur. The prosecuting attorneys are loath to start any prosecutions unless they are absolutely forced into it. The matter of persecution instead of prosecution was very well brought out, because the sympathetic public is tolerant and broad minded with reference to the medical practice laws. I was interested in the problems that Dr. Platter has in Ohio. The difficulty we have in Michigan is due to the fact that the law specifies that the secretary and executive officer shall file with the state treasurer each month and deposit the proceeds of the board. After that, it is turned over to the auditor general, and we have great difficulty in getting our vouchers on it because it goes into the general fund and is used to defray the expenses of other departments which are not self supporting. Our law also classifies the offenses mostly as misdemeanors. We have the same trouble. If we do get a conviction the defendant is often let off with a light fine or suspended sentence. With reference to Dr. Morgan's paper, I think the standard of requirement must be maintained at any cost and should not yield to any pressure from without. I do not believe excep-

tions should be made because we jeopardize our standing. I think that any other board is justified in looking askance on accepting the reciprocal endorsement of any state that follows those practices. Concerning Dr Ebaugh's paper on psychiatry, Michigan has no provisions for the examination of specialists. Our examinations in the subjects are statutory, specified in the medical practice law of Michigan. Further, we are not allowed to examine specialists, and the scope of the examination must be one of general medicine and to fit the general practitioner. We have no psychiatrist on the Michigan board. We do include some questions under general medicine, under mental and nervous diseases. However I think it is a matter to be taken up with the medical schools possibly by the Council on Medical Education and Hospitals rather than the Federation of State Boards or any state board of licensure.

DR HAROLD RYPINS, Albany, N. Y. About Dr Ebaugh's paper, I have had the opportunity to serve as examiner for the New York Civil Service for applicants for internships and residencies in the state psychiatric hospitals. I found that the percentage of applicants, all of whom were graduates of recognized medical schools, who could even meet my very humble knowledge in the field of psychiatry and neurology was so low as to be surprising. Certainly not more than 40 per cent of them were even able to make a little diagram of a cross section of the cord. If one asked them the difference between symptomatic epilepsy and essential epilepsy that was practically impossible, or the difference between pyramidal tract syndrome and extrapyramidal tract syndrome. In about five years I think it might be very wise for the state boards rather insidiously to include neuropsychiatric questions. I do not believe it is necessary to go to the legislature and ask authority to set up a special examination.

DR ROCK SLESTER, Wauwatosa, Wis. I want to compliment Dr Ebaugh for coming to the defense of this stepchild of medicine. I want to emphasize that psychiatry is not necessarily a specialty. When it is considered that over half of the hospital beds of this country are occupied by psychiatric patients and that it has been repeatedly estimated that over half of the patients who come to the general practitioner's office fall into that broad group of psychoneuroses and it is this large group of patients who are drifting to the chiropractor, the osteopath and the naturopath and the various lack of understanding, it is a problem of everyday life. It is high time that this work that Dr Ebaugh is recognized by our medical colleges and by the state boards.

DR MCINTYRE, Dr Alvin G. Koehler of Oshkosh, Wis., has asked what pronouncement the Federation of State Medical Boards has made respecting graduates from foreign schools. I will tell what Michigan has done. In 1930 Michigan required first citizenship papers. Also since 1930 Michigan has required that all foreign applicants irrespective of their schools must be certified to by the American consul in the foreign city where the medical school is located or by the American embassy. In addition, we require that they spend an extra year in a class A medical school of the United States and one extra year in an approved United States hospital serving a twelve months rotating internship. This so far has been very beneficial to Michigan in our endeavor to enforce the board's rulings.

DR METZGER. I will read a statement of what is required in Pennsylvania. I will insert what our requirements are and we must be exacting in the East because we have them coming in droves now. Some years ago it was reported that there were about 2,000 American students studying abroad. Aside from those that are of foreign birth we have a lot of them coming. There will be more of them. There should be some uniformity if we can attain it in the various states. In the matter of preliminary education they must have credentials that satisfy the department of public instruction. If they have had foreign preliminary education *visa* credentials must be presented from the foreign country. In medical education we require an outline of the subjects studied throughout the course, in the original language of the school with a

certified translation into English. This is done because of the fact that there are some getting diplomas from foreign schools that do not follow out the full course. Second certification on the Pennsylvania blank of the fact that he graduated from the school giving the dates. Third, a recent, unmounted photograph with a state label attached on which the dean has certified to the identification of both the student's likeness and his handwriting. Next, a certification of the fact that the course of medicine studied by the applicant entitles him scholastically to licensure for the practice of medicine in the country in which the school is located. That means that they cannot take the short-cut courses. Each of these credentials and certifications must be signed by the authorized persons and, if received in a foreign country, must be *visa*ed by the American consul. That is essential to make it a legal document. American citizenship or a declaration of intention to become an American citizen is required of all candidates. An internship in America, and preferably in one of our approved hospitals in Pennsylvania is required of all foreign graduates. The credentials must be approved by the state board of medical education and licensure, or by a member thereof before the candidate may be admitted to internship in a hospital approved by this board. The examination must be both written and a bedside examination for all foreign graduates.

DR W. SCOTT NAY, Underhill, N. Y. I have had several letters from graduates of foreign schools, and I wrote them that we did not care to admit them under any circumstances for the reason that we have accepted some of them, granting them our certificates. That is the last we have ever heard of them. We think we have physicians enough here without admitting foreigners. I would mention those who come from the Italian schools and have wished to locate in places such as Barre and Pittsford, Vt., where there is so much granite cut. A number succeeded in getting in. They have stayed for a short time and then have gone away. The only thing we do is to tell them that we do not care to accept their applications.

DR GEORGE M. WILLIAMSON, Grand Forks, N. D. In North Dakota we have practically the same regulations that Dr McIntyre said the state of Michigan has. Candidates have to go through the certification with regard to identification and then spend a year in a class A medical school and a year internship.

DR HAROLD L. MORRIS, Detroit. What are the subjects in which examinations are held by the basic science board of Nebraska? If the medical student passes those six subjects does the state board of registration require him to take a second examination?

DR HENRY J. LEHNHOFF, Lincoln, Neb. The examination in the basic sciences will be waived in case the applicant can send satisfactory credentials to the basic science board that he has passed a favorable examination in those five basic science subjects. It would not be expected that a chiropractor could give credentials that would permit him to have a waiver. Dr Baker asked whether some chiropractors were not coming in and not coming before the board. I do not think that is true. If a chiropractor goes into a town some medical practitioner who is beside him will report him, an osteopath particularly will do that because the chiropractor encroaches more on the osteopath's ground than on the general practitioner's. I hardly think one would find twelve chiropractors unlicensed that have come in since 1927.

DR ARTHUR C. MORRAN, Philadelphia. Name the six subjects in basic science.

DR LEHNHOFF. Anatomy, pathology, chemistry, physiology, hygiene and bacteriology.

DR MORRIS. If a medical student passes the basic science board does the medical board then make him take the examination in the same six subjects again?

DR LEHNHOFF. We are supposed to.

DR MORRIS. You mentioned that your standard was 75 per cent and the other was 60 per cent. How could he pass one without passing the other one?

DR LEHNHOFF. I think the law reads that we should examine him. It was not the intention of the framers of the

law that we should reexamine him, and we had quite a problem among ourselves. We do not require candidates to take all the examinations over. After they are passed on by the basic science board the questions are passed over to us and we pass on the examinations that are written before the basic science board.

DR H M PIATTER, Columbus Ohio. Mr Chairman you referred to me and Dr Hassig the resolution prepared by Dr Crowe. We have tried to edit it, and we submit the following:

WHEREAS Persons who have been prohibited from broadcasting misleading medical propaganda over radio stations in the United States are now making such misrepresentations in the English language from stations in northern Mexico and

WHEREAS One of said broadcasters not a physician knowing that one nearing death with an incurable disease will travel thousands of miles and give his last penny for anything offering the faintest hope of cure is boldly broadcasting the preposterous statement that his hospital cures 70 to 75 per cent of internal and of external cancers even after they had been pronounced incurable by prominent physicians and surgeons and

WHEREAS His utterly absurd reports on the cure of cancer are positively refuted by verified certifications of death due to cancer of a large number of persons within a few months after having been reported cured at this man's hospital therefore be it

Resolved That the Federation of State Medical Boards representing the licensure authorities of the United States deplores that an enlightened humane nation permits such broadcasters to prey on suffering human beings sending him or her away to die sometimes before reaching home. Believing that if the pitiful results of such broadcasting were known to the Mexican government its conscientious executives would stop it the Federation hereby respectfully earnestly petitions the Departamento de Salubridad Publica the Departamento de Comunicaciones the Medical Syndicates and the scientific medical profession of Mexico to cooperate with the reputable medical profession of the United States in its effort to put a stop to the merciless exploitation of helpless suffering incurables.

DR CROWE I had Dr Brinkley in the courts of Dallas and would have taken his license away from him but the courts of Texas years ago decided that a man might have two places of residence one his place of business and the other his domicile. Consequently my case was transferred to Valverde County. Here is Valverde County. Look at XER. Greetings from the chamber of commerce churches schools, municipal government, power plant banks and trust companies. They told me they did not care what he does he put them on the map and they were for him. Look at this one issue of a paper. That belt cost \$2,500. It cures everything from falling hair to fallen arches. They do not sell it for \$2,500. They lease it to you for a certain time but they make you deposit with them \$2,500 for its safe return, and they never come back. Here is a check for \$1,045. There is one for \$1,250 and there is one for \$875, and two others boosted the amount to \$7,400. For what? For the pretended removal of cataract. I have a basketful of these checks. I brought just a few to show you. We got rid of these fellows but they are coming to your country. We were the last state in the Union to license optometrists. They went around the country and sold farmers glasses. A number of those men are reputable but there are a lot of them that are crooks. This man here was in the Rice Hotel dining room, and he had 300 people to whom he was going to teach brain breathing. Our man got there and told him that if he got up on that platform to lecture he would spend the night in jail. He did not get on the platform. These fellows do not come to Texas any more. I told Levine he was a swindler and he called me a liar. I knocked him down and took him to the grand jury. We are protecting the public, trying to do the best we can. Is that work worth while? It is not costing the state of Texas one penny. It is costing the doctors of Texas an annual registration of \$15,000 a year to do that. We save almost that much in two or three days. I sent a man by plane to Houston to get these two fellows. We do not have to run around for a police officer. We do not nambu-pambu them in Texas. I wanted you to know that you can do things if you want to but you have got to do them yourself, because if you let George do it they will not be done.

DR METZGER If we can get Dr Crowe to come to our states and show us his demonstrations, I am sure it will make us do better work along that line.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Personal**—Dr Charles Jack Fisher has resigned as house physician at St Vincent's Hospital Birmingham, to become head of the Lawrence County Health Department, effective April 1, it is reported.

**Meeting of Clinical Society**—The twenty fifth annual clinic and nineteenth annual meeting of the John A. Andrew Clinical Society was held at the John A. Andrew Memorial Hospital April 5-11. In addition to the many clinics held on the specialties, the following physicians, among others presented papers:

John T. Givens, Norfolk, Va., The Sedimentation Rate in Practice  
Toussaint T. Tildon, Tuskegee, Cardiovascular Disease Among the Neurosyphilitic  
Seale Harris, Birmingham, Blood Chemistry Studies in Automobile Accidents with Particular Reference to Drinking Drivers  
Trygve Gundersen, Boston, Diagnosis and Treatment of Corneal Diseases  
Walter C. Crump, New York, Rationale in Appendicitis  
Marion C. Pruitt, Atlanta, Ga., Rectal Fistula  
William L. Funkhouser, Atlanta, Ga., Vomiting as a Symptom in Infancy and Childhood

A public health meeting was held Monday evening this session has been established as a permanent memorial to the late Dr Charles V. Roman, the first president of the society. Thursday evening a symposium on genito-urinary diseases was held with the following speakers: Drs. Vance S. Mullan, Chicago; Chester C. Ames, Detroit; Charles H. Garvin, Cleveland; Robert Francis Jones, Washington, D. C.; and Walter S. Grant, Chicago.

### CALIFORNIA

**Society News**—Dr Frank S. Dolley, Los Angeles addressed the San Diego County Medical Society, April 3 on 'Diagnosis and Surgical Treatment of Bronchiectasis and Intrathoracic Tumors'. At a joint meeting of the Los Angeles County medical and dental associations, April 16 David W. McLean, D.D.S., among others discussed 'Mechanical Causes of Dental Pathology,' and Dr Samuel J. Glass 'Endocrine Aspects of Some Dental Abnormalities'.

**Survey of Student Health**—Students entering the University of California and Leland Stanford University in the fall of 1935 are to be the subject of a ten year study, according to the Bulletin of the National Tuberculosis Association. The physical histories of these students which number about 5,000 will be kept in the two universities. Follow up records will be kept following graduation. A permanent research committee has been established with representatives of all supporting tuberculosis associations participating together with representatives of the student health services in the universities and a research adviser. The expense of the research is to be borne by the regional tuberculosis associations and by the institutions cooperating.

### DISTRICT OF COLUMBIA

**The Kober Lecture**—Capt Lucius W. Johnson, medical corps, U. S. Navy, gave the annual Kober Lecture at Georgetown University March 28, on 'Plastic Surgery in Relation to Armed Forces, Past Present and Future'.

**Medical Bills in Congress**—H. R. 12424 introduced by Representative Quinn, Pennsylvania proposes to provide for the examination and registration of beauty culturists in the District of Columbia. 'Beauty culture' is defined to mean in part the removal of superfluous hair and the massaging, cleansing, stimulating, manipulating, exercising or similar work upon the scalp, face, arms or hands, or the upper part of the body by the use of mechanical or electrical apparatus or appliances or cosmetics, preparations, tonics, antiseptics, creams, or lotions or by any other means, and of manicuring the nails which enumerated practices shall be inclusive of the term beauty culture but not in limitation thereof.

**University News**—Dr Antoine Lacassagne of the Radium Institute of Paris addressed the faculty and students in Georgetown Washington University School of Medicine, March 26, his subject was 'A Presentation of Tumors in Rabbits Originating at the Sites of Former Foci of Inflammation Treated with

**Roentgen Rays** —Dr Henry E Sigerist of the Institute of the History of Medicine, Johns Hopkins University, Baltimore, gave the sixth lecture in the Smith-Reed-Russell series at George Washington University School of Medicine March 17 his subject was "The Philosophic Background of Medicine" —Dr Edward C Rosenow, Rochester, Minn., addressed the medical and dental students of Georgetown University, Washington March 10, on "Focal Infection and Elective Localization of Streptococci"

## FLORIDA

**Annual Graduate Course**—The Florida Medical Association announces the fourth annual graduate short course for physicians at the University of Florida, Gainesville, June 22-27 The subjects covered will be medicine, pediatrics, obstetrics, gynecology and neuropsychiatry The following physicians will present the course

Oscar W Bethea professor of clinical medicine Tulane University of Louisiana School of Medicine New Orleans  
Charles Reid Edwards professor of clinical surgery University of Maryland School of Medicine Baltimore  
Emil Novak associate in gynecology Johns Hopkins University School of Medicine Baltimore  
Capt Walter S Jensen director department of neuropsychiatry School of Aviation Medicine Randolph Field Texas  
Otto H Schwarz professor of obstetrics and gynecology Washington University School of Medicine St Louis

A symposium on respiratory diseases has been arranged for Monday evening with Drs William Atmar Smith Charleston, S C, Herschel C Crawford, Atlanta Ga and Matthew Jay Flipse, Miami, as the speakers Drs H Farle Conwell Birmingham, Ala, Frank L Fort, Jacksonville and Arthur H Weiland, Coral Gables, will present the symposium on fractures Thursday evening

## GEORGIA

**Annual Doctors' Day**—March 30 was designated "Doctors' Day" for the Fulton County Medical Society Open house was held at the home of Dr and Mrs James Callhoun McDougall, Atlanta, where the woman's auxiliary entertained members of the society This is an annual event honoring officers of the society A floral tribute was received from the Crawford W Long Hospital Alumni Association in honor of the late Dr E C Davis

**Dr Callison Goes to South Carolina**—Dr Henry Grady Callison, commissioner of health of Richmond County since 1933, has accepted a position as director of the field training unit personnel of the South Carolina State Department of Health Dr Thomas B Plumiz is acting commissioner until a successor to Dr Callison has been appointed It is reported that he will be placed in charge of Bamberg Allendale and Barnwell counties in South Carolina Dr Callison came to Augusta in 1932 as deputy commissioner of health he was named commissioner in June of the following year

## ILLINOIS

**Society News** —Dr Robinson Bosworth, Rockford was elected president of the Illinois Tuberculosis Society at its annual meeting in Decatur, April 6—At a meeting of the Morgan County Medical Society April 9 speakers were Drs Kenneth H Schnepf, Springfield on 'Correlation Between Functional Pathology and Atmospheric Variability' and Howard L Alt, Chicago, 'Iron Deficiency of Anemias' —Dr Abraham A Low, Chicago, discussed 'Nervous and Mental Diseases Commonly Seen by the General Practitioner' before the Kankakee County Medical Society, April 9, in Kankakee

### Chicago

**University News**—Dr Leon Asher, Berne Switzerland lectured, April 22 under the auspices of the University of Illinois College of Medicine on 'The Function and Mechanism of the Vegetative Nervous System' —Herald G O Holck, Ph D of the department of physiology University of Chicago has been elected associate professor of pharmacology in the College of Pharmacy of the University of Nebraska effective September 1

**Public Safety Institute**—An Institute of Public Safety has been established at Northwestern University, to be financed by the Automobile Manufacturers Association and the university It will be a research laboratory for traffic safety problems and headquarters for the traffic control program of the International Association of Chiefs of Police The institute will cooperate with the National Safety Council in its campaign for traffic death reduction install traffic accident prevention bureaus in selected cities and states provide traffic

information service to police departments, and assist in improving traffic curriculums by cooperating with Harvard University's accident prevention bureau and other agencies Franklin M Kreml police lieutenant in Evanston which has won the National Safety Council's "safest city" award three times in the last four years, was appointed director of the institute

**Tri-State Hospital Meeting**—The Tri-State Hospital Assembly will convene at the Hotel Sherman in Chicago May 6-8 Organizations sponsoring the assembly are the Hospital Associations of Illinois Indiana and Wisconsin Speakers on the program will include

Dr John S Coulter The Care of the Patient from the Viewpoint of the Physical Therapist  
Dr Arthur R Cowell Evanston Ill Present Status of the Treatment of Diabetes  
Dr M Herbert Barker Cholesterol Metabolism—Factors in Diet and Disease  
Ruth M Leverton M S of the University of Chicago Studies of the Iron Metabolism of Normal Women in Relation to the Menstrual Cycle  
Dr Anton J Carlson Nutritional and Economic Significance of the Oxidative Rancidity of Fats

Symposiums, conferences and round tables will be held, participated in by the various groups which comprise the assembly

## IOWA

**Society News**—At a meeting of the Floyd County Medical Society in Charles City, March 24 Drs Floyd H Fillenwarth Charles City and Thomas G Walker, Riceville, discussed 'Meningitis Following Mastoid Trouble' and 'Congenital Heart Disease' respectively —Dr Julian M Bruner, Des Moines gave an illustrated lecture on urography before the Hardin County Medical Society in Iowa Falls March 12 —Dr Nathaniel G Alcock Iowa City discussed 'Malignancies of the Urinary Tract, with Special Reference to Treatment' before the Jefferson County Medical Society in Fairfield, March 13 —The Marshall County Medical Society was addressed in Marshalltown, March 3, by Dr Edward H Skinner Kansas City, Mo, on 'Curable and Preventable Fields of Malignancy' —At a meeting of the Woodbury County Medical Society in Sioux City, March 12, Drs Charles F Obermann, Cherokee and Charles Gregory Barer Iowa City discussed 'Mental Diseases Due to Organic Conditions' and 'Diagnosing the Inflammatory Diseases of the Brain and the Meninges' respectively

## KANSAS

**A Medical Press Bureau**—The Sedgwick County Medical Society announces the creation of a press bureau Several qualified members of the committee on public education were named to be constantly available to assist local newsmen in securing accurate information about incidents having a medical angle A statement sent to local publishers and editors was in part as follows To add local interest to some story you may want to quote the Press Bureau of the Sedgwick County Medical Society We will be happy to prepare a statement for you at any time and much prefer that you quote the Bureau instead of naming some individual doctor in the city Members of the society are urged to protect themselves against sensational publicity by referring inquiring reporters to the Press Bureau

## LOUISIANA

**Personal**—Dr Blanche Moore Haines Three Rivers, Mich, and Dr Louis Martin New Orleans observed the fiftieth anniversary of their graduation from Woman's Hospital Medical College of Chicago April 6 at a dinner in New Orleans —Dr Henry C Gahagan Shreveport, has been appointed director of the Coughatta health unit, succeeding Dr Bernard Hochfelder, resigned it is reported

**Tuberculosis Meeting**—The Orleans Parish Medical Society held a special meeting on tuberculosis, April 20 with the following speakers

Dr Horton R Casparis professor of pediatrics Vanderbilt University School of Medicine Nashville Childhood Tuberculosis  
Dr Max Pinner Tuberculosis Hospital Oneonta N Y Diagnostic and Prognostic Significance of Positive and Negative Sputum  
Dr Paul P McCain superintendent and medical director North Carolina Sanatorium for the Treatment of Tuberculosis Sanatorium  
N C Epidemiologic Aspects of Tuberculosis  
Dr Lewis J Noorman dean University of Oklahoma Medical School Oklahoma City Compression Therapy

The aspects of safe driving were considered in a symposium before the society April 13 Speakers were Drs Frederick L Fenno Emmett L Irwin Charles A Bahn Shirley C Lyons and James T Nix A resolution incorporating fundamentals of safe driving was read by Dr Joseph C Menendez



## MAINE

**Campaign Against Cancer**—An intensive educational program on cancer will be carried out in Maine under the auspices of the American Society for the Control of Cancer, the state board of health and the Maine Medical Association. As a part of this program, the cancer committee of the state association will devote half a day at the annual meeting in June to a symposium on cancer, and all physicians are urged to attend.

## MASSACHUSETTS

**The Harvard Conference of Arts and Sciences**—The Harvard tercentenary conference of arts and sciences will be held at Harvard University, Boston August 31-September 12. World leaders in the physical, biologic and social sciences and the humanities will discuss the fundamental problems of science and society rather than the particular aspects of applied learning. Fourteen winners of the Nobel Prize will be on the program together with representatives of Europe, the United States, Japan, China, Argentina, Canada and Australia. The extensive program includes the following speakers:

Leopold Ruzicka, professor of chemistry, Technische Hochschule Zurich  
The Male Sex Hormones  
Dr. Karl Landsteiner of the Rockefeller Institute for Medical Research  
New York. Serologic and Allergic Reactions with Simple Chemical Compounds  
Dr. Kiyoshi Shiga, professor of medicine, University of Tokyo. Trend of Prevention Therapeutics and Epidemiology of Dysentery Since the Discovery of Its Causative Organism  
Dr. Ross Granville Harrison, professor of biology, Yale University  
School of Medicine, New Haven, Conn. Relations of Symmetry in the Developing Embryo  
Hans Spemann, Ph.D., professor of zoology, University of Freiburg (title not yet announced)  
Sir Joseph Barcroft, professor of physiology, University of Cambridge  
The Genesis of Respiratory Movements in the Fetus  
Sir Frederick Gowland Hopkins, professor of biochemistry, University of Cambridge (title not yet announced)  
Dr. Bernardo Alberto Houssay, professor of physiology, University of Buenos Aires (title not yet announced)

Symposiums to be presented include one on the applications of physical chemistry to biology by Schack August Steenberg Krogh, Ph.D., professor of zoological physiology, University of Copenhagen, John Howard Northrop, Ph.D., of the Rockefeller Institute for Medical Research, Theodor Svedberg, D.Sc., professor of physical chemistry, University of Uppsala and Dr. Otto Warburg of the Kaiser Wilhelm Institute for Cell Physiology, Berlin. A symposium on factors determining human behavior will be offered by

Dr. Edgar Douglas Adrian Foulerton, professor of the Royal Society  
Dr. Pierre Marie Felix Janet, professor of psychology, College of France  
Dr. Carl Gustav Jung, professor of analytic psychology, Technische Hochschule Zurich  
Jean Piaget, professor of the history of scientific thought, University of Geneva  
Dr. James Bertram Collip, professor of biochemistry, McGill University  
Rudolf Carnap, professor of philosophy, Deutsche Universität Prague  
Abbott Lawrence Lowell, LL.D., president emeritus, Harvard University  
Bronislaw Malinowski, professor of anthropology, University of London

## MICHIGAN

**Committee Confers with Governor on Relief**—At a meeting of a committee of the Michigan State Medical Society, March 18, Governor Frank D. Fitzgerald stated that he intends to appoint a commission to outline legislation designed to revamp and coordinate all state relief agencies and to see that the medical profession is represented on it. Through the committee, the state society offered the services and cooperation of the medical profession in settling these problems.

**Integration Program of State Society**—The Michigan State Medical Society announces an "integration program" as a part of a five year program to coordinate its activities. According to the program the society is represented as a group of central committees whose energies will be directed to evolution of plans, policies and objectives. Plans and policies directly concerned with the conditions represented by their specific designation such as legislation, economics or health, will be evolved independently of any other committee to be transmitted to the council or its executive committee for its approval. The projects will then be passed on to the public relations committee for consideration as to their worth to the councilor districts, the county societies and the individual physician. Following the report of the public relations committee to the council or executive committee, approved projects will be disseminated by the public relations committee to the medical profession through the councilors, the public relations committee or its equivalent in the county society, the individual physician and the public. The object of the new plan is to

have every doctor at all times acquainted with the plans, policies and objectives of the state society and to have a consistency of thought and action, as far as possible, among the membership.

## MISSISSIPPI

**State Medical Meeting at Greenville**—The sixty-ninth annual session of the Mississippi State Medical Association will be held at the Hotel Greenville in Greenville, May 5-7, under the presidency of Dr. James R. Hill, Corinth. Guest speakers will include the following physicians:

Fred W. Rankin, Lexington, Ky., Symptoms and Prognosis of Organic Diseases of the Lower Gastrointestinal Tract  
James B. Stanford, Memphis, Modern Ophthalmology  
Harold L. Warwick, Fort Worth, Ionization in Nasal Allergy  
Alvin E. Keller, Nashville, An Evaluation of the Clinical Manifestations of Hookworm in Children  
Frank J. Heck, Rochester, Minn., Practical Treatment of Anemia.

Tuesday evening, Dr. Hill will deliver his presidential address, among others, on "Some Accomplishments of Organized Medicine in Mississippi," and Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, will present the Ewing Fox Howard Oration on "Medicine and the Changing Social Order." Other physicians on the program include:

Willard H. Parsons, Vicksburg, Fractures of the Upper End of the Femur with Particular Reference to Their Treatment  
Theophilus E. Ross, Jr., Hattiesburg, Inguinal Hernia  
Thomas P. Sparks, Jr., Vicksburg, Renal Lithiasis  
John W. Barksdale and Nathan F. Kendall, both of Jackson, Use of Radium in Carcinoma of the Cervix  
Edwin E. Benoist, Natchez, Maintenance of Relative Asepsis in Abdominal Surgery  
John C. Culley and James R. Sims, Jr., Oxford, Anesthesia in Obstetrics and Obstetric Complications  
Hubert Lowry Rush and Leslie V. Rush, both of Meridian, Spina Bifida  
Adna G. Wilde, Jackson, Clinical Significance of Episcleeritis  
DeWitt Hamrick, Corinth, Tonsillectomy, Indications, Methods, Results  
Vernon B. Harrison, Holly Springs, Management of Syphilis from a Public Health Standpoint  
John W. Shackelford, Greenville, Poliomyelitis, A Review of Recent Literature  
Norris C. Knight, Barksdale, Laboratory Aids in the Diagnosis of Communicable Diseases  
John F. Lucas, Greenville, Prevention and Treatment of the Late Toxemias of Pregnancy  
Leon S. Lippincott, Vicksburg, Blood Chemistry in Kidney Disease  
Van C. Temple, Hattiesburg, Asphyxia in the New Born  
Walter E. Johnston, Vicksburg, Arthritis  
Carl O. Singly, Meridian, Some Common Fungus Diseases of the Skin  
Robin Harris, Jackson, Sinus Disease and Nasal Allergy.

The women's auxiliary to the state association will also convene at this time; speakers will include Dr. Hill, Dr. Harvey F. Garrison, Jackson, and Dr. Fishbein. The seventh annual meeting of the Mississippi State Hospital Association will be held at the Hotel Greenville, May 4; speakers will include Dr. Bert W. Caldwell, executive secretary, American Hospital Association, Chicago, on "Modern Trends in Hospitalization," and Dr. Neal N. Wood, Birmingham, Ala., "Common Methods of Sterilization."

## MISSOURI

**Personal**—The following St. Louis physicians observe their fifty-fifth anniversary of graduation from the St. Louis Medical College at a reunion, March 4: Max C. Starkloff, Willis Hall, Amand N. Ravold and James A. Dickson.

**Society News**—The St. Louis Medical Society acted as host to the interns of St. Louis hospitals at its meeting, March 10; the program was presented by the following interns among others: Ewing Selgman, "Hematemesis Following Cholecystectomy," and Jesse Norris Tucker, Jr., "Polyneuritis Following Hyperemesis Gravidarum." Dr. Dallas B. Phemister, Chicago, discussed "Bone Tumor Problems" before the society, March 12. Speakers before the Marion Ralls County Medical Society in Hannibal, March 6, were Drs. Walter Baumgarten and Fred W. Bailey, St. Louis, on "Hypertension" and "Surgical Care of Gallbladder Diseases," respectively. At a meeting of the St. Louis County Medical Society, March 25, Dr. Richard S. Weiss discussed "Precancerous Dermatoses," and Dr. Louis H. Jorstad, Cancer of the Lip and Buccal Cavity.

## MONTANA

**Physician Honored**—Dr. Joseph Pedalue, Bozeman, was guest of honor at a banquet, April 2, given by the Gallatin County Medical Society in recognition of his completion of fifty years in the practice of medicine in Montana. Dr. Pedalue was made an honorary life member of both the county society and Medical Association of Montana and was presented with a book and flowers. Sixteen years of his career has been spent as health officer of Bozeman and Gallatin County.



## NEW MEXICO

**Safety Conference**—A program to reduce motor vehicle accidents was to be formulated at a statewide safety conference in Santa Fe April 20. Interested groups were invited to present plans and offer suggestions.

**Personal**—Dr Frank W. Parker Jr., Silver City, has been appointed health officer of the tenth health district. Dr Leonard A. Dewey, Portales, who has been acting health officer in that district has been appointed epidemiologist in the state health department.

**Child Welfare Extended with Federal Funds**—Six new offices have been opened by the bureau of child welfare of the state bureau of public health to extend child welfare services through a grant of funds under title V of the Social Security Act which is administered by the Children's Bureau. With the present state appropriation the bureau has maintained offices at Santa Fe and Albuquerque.

## NEW YORK

**Dr Baldwin Awarded Kober Medal**—Dr Edward Robinson Baldwin, director of the Edward L. Trudeau Foundation, Saranac Lake, will be presented with the Kober Medal at the annual meeting of the Association of American Physicians in Atlantic City, May 6. The medal is awarded each year by the association on the recommendation of its council. Dr Baldwin graduated from Yale University School of Medicine in 1890 and has been practicing at Saranac Lake since 1893. Among other things he was president of the Saranac Lake board of health from 1899 to 1901 and from 1916 to 1917 president of the National Tuberculosis Association.

**Dr Godfrey Nominated State Health Officer**—Dr Edward S. Godfrey Jr., assistant state health commissioner, was nominated April 6 by Governor Lehman as commissioner to succeed Dr Thomas Parran Jr. who became surgeon general of the U. S. Public Health Service. Dr Godfrey, a graduate of the University of Virginia Department of Medicine served as health officer in Arizona for several years. He joined the New York department in 1917 as a sanitary supervisor under the late Dr Hermann M. Biggs. Later he served as epidemiologist and in 1931 was appointed director of local health administration. In 1934 he received the title of assistant commissioner in charge of the bureau of local health administration. Dr Godfrey was clinical professor of epidemiology at Columbia University College of Physicians and Surgeons from 1928 to 1935 and has been president of the American Epidemiological Society. He has been secretary of the Public Health Council since 1932.

## New York City

**Progress of Hospital Plan**—The Associated Hospital Service of New York, a group plan for financing hospital care, has enrolled 66,095 members in the first ten months of its operation. The plan represents 174 hospitals in the metropolitan area.

**Personal**—James Thomas Culbertson, Ph.D., instructor in bacteriology, Columbia University, has received a fellowship from the John Simon Guggenheim Memorial Foundation for study of immunity against parasitic diseases at the London School of Hygiene and Tropical Medicine. Michael Heidelberger, Ph.D., associate professor of biologic chemistry at Columbia, received a renewal of a grant for study of immune reactions.

**WPA Seeks to Employ Handicapped**—The Works Progress Administration has opened a bureau for the physically handicapped. Cardiac cases and persons with arrested cases of tuberculosis are included in the classification as well as the orthopedic and other cases commonly associated with the term. Figures issued by the home relief bureau showed about 12,000 physically handicapped on the relief rolls, 5,000 of whom are classified as employable.

**Hospital News**—Dr Roger Anderson, Seattle, gave a special afternoon lecture at the New York Polyclinic Medical School and Hospital March 20 on "An Anatomical or Non-operative Method of Treating Fractures of Both Bones of the Forearm and Ambulatory Method of Treating Fractures of the Femur." At a recent meeting of the clinical society of the school Dr Archibald D. Campbell, Montreal, Que., and George W. Crile, Cleveland, spoke on "The Present Status of Endocrine Therapy in Gynecology" and "The Genesis and Surgical Treatment of Hypertension" respectively. A meeting in commemoration of the late Professor Pavlov was held at

Mount Sinai Hospital, March 24. Speakers were Drs. Boris P. Babkin, Montreal, on "I. P. Pavlov: His Life and Work," and Howard S. Liddell, Ph.D., Ithaca, N. Y., "Pavlov: the Psychiatrist of the Future."

**Society News**—A symposium on psychiatry was presented before the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists March 20, by Drs. Eugen Kahn, New Haven, Conn., Karl M. Bowman, George W. Henry and Gerard L. Moench—Clarence C. Little, Sc.D., managing director of the American Society for the Control of Cancer, and Dr. William J. Hoffman addressed the Medical Society of the County of Queens March 31 on "Cancer and the Present Status of the Campaign for Cancer Control and Present-Day Treatment for Cancer" respectively. Dr. Frank A. Pemberton, Boston, addressed the Queensboro Surgical Society, April 29, on "Tumors of the Ovary." Dr. Richard B. Cattell, Boston, addressed the Bronx County Medical Society, April 15 on "Tumors of the Gastro-Intestinal Tract—Diagnosis and General Principles of Treatment." Speakers before the Bronx Gynecological and Obstetrical Society, April 27, included Drs. Harry Projector on "Multiple Fibroids Complicating Pregnancy," and Jacob Clahr, "Corpus Luteum Abscess." At a meeting of the Medical Society of the County of New York April 20, Dr. Arthur M. Master, in collaboration with Drs. Harry L. Jaffe and Simon Dack presented "A Study of 250 Attacks of Coronary Artery Thrombosis: Treatment, Course and Prognosis of the Attack" and Dr. Edward F. Bland, Boston, "Subsequent Course of 400 Patients Following Coronary Thrombosis: A Study in Prognosis."

## NORTH CAROLINA

**State Board Meeting**—The North Carolina State Board of Medical Examiners announces a meeting June 15 at the Sir Walter Hotel, Raleigh. Applications for endorsement of credentials will be considered during the morning. Registration for examinations will take place at 2:30 p. m. and examinations will be held the following morning and thereafter through Friday, June 19. Each applicant in order to register must possess an M.D. degree and he must have his diploma with him, together with two letters of recommendation. Applicants for the first two year examinations must be certified by their respective deans as having completed all the first two year subjects successfully.

**State Medical Meeting at Asheville**—The eighty-third annual session of the Medical Society of the State of North Carolina will be held at the Battery Park Hotel Asheville, May 4-6 under the presidency of Dr. Paul H. Ringer, Asheville. Among many other physicians the following will speak on the subjects indicated:

Milton J. Rosenau, Chapel Hill, Pneumonia  
Irvin Abell, Louisville, Ky., Relation of Diabetes to Surgery  
Albert McCown, Washington, D. C., Educational Program for Pediatricians  
James S. McLester, Birmingham, Ala., President American Medical Association  
Isidor S. Ravdin, Philadelphia, Certain Aspects of Gallbladder Disease  
Clarence C. F. Cardner, Jr., Durham, Hyperparathyroidism—Its Recognition and Treatment  
Julian A. Moore, Asheville, Surgical Treatment of Encapsulated Intrathoracic Tumors  
Carl V. Reynolds, state health officer, Raleigh, Poliomyelitis in North Carolina in 1935  
James M. Northington, Charlotte, Is Public Health Impinging on Private Practice?

The women's auxiliary will meet, May 4-6 and the North Carolina Public Health Association will hold its twenty-sixth annual session Monday, May 4. Speakers will include Dr. James A. Hayne, Columbia, state health officer of South Carolina, "Columbia on Maternal and Child Health—Why Should the Maternal and Child Death Rate Be So High in the South and What Remedies Are We Going to Apply?"

## OHIO

**Symposium on Virus Diseases**—At the annual meeting of the Ohio Academy of Sciences at the University of Toledo April 10 a symposium on virus diseases was presented at a joint session of the sections on zoology and medical sciences arranged by Dr. Charles A. Doan, Columbus. Among the speakers were Dr. Noel Paul Hudson, Columbus, on "Factors of Resistance and Immunity in Poliomyelitis," Dr. James A. Doull, Cleveland, "Epidemiologic Considerations in the Field of Virus Diseases with Special Reference to the Common Cold and Influenza," and Joseph T. Tamura, Ph.D., Cincinnati, "Cultivation of and Immunological and Clinical Studies with the Virus of Lymphogranuloma Inguinale."

**Society News**—Dr. Elliott P. Joslin, Boston, addressed the Academy of Medicine of Cincinnati April 14 on diabetes under the joint auspices of the academy and the committee on diabetes.

of the Public Health Federation of Cincinnati—Dr Richard H. Jaffe, Chicago, addressed the Summit County Medical Society, Akron, April 7, on 'Significance of the So Called Pre-cancerous Lesion'. The society held its fourth postgraduate day, April 22, at St. Thomas Hospital—Drs. Walter M. Simpson and Herbert Worley, Kendell, Dayton, addressed the Montgomery County Medical Society, Dayton, April 17 on "Studies on the Physiology of Fever" and 'Gonorrheal Arthritis' respectively—Dr Ernest Perry, McCullagh, Cleveland, discussed 'Hormonology of the Testis' before the Toledo Academy of Medicine, April 3. Dr Louis E. Prickman, Rochester, Minn., addressed the medical section of the academy, April 17 on 'Practical Points in the Handling of the Allergic Patient'.—The Academy of Medicine of Cleveland will have its annual dinner at the Hotel Cleveland, May 8. Dr Martin H. Fischer, Cincinnati, will speak on 'Our Day and Tomorrow'.

### OREGON

**Society News**—Dr Laurence Selling, Portland, addressed the Multnomah County Medical Society, Portland, March 18 on "Neurologic Changes in Pernicious Anemia." Dr Richard B. Dillehunt, Portland, addressed the society, April 8 on 'The Problem of Low Back Pain'.—Clarence C. Little, Sc.D., managing director of the American Society for the Control of Cancer, New York, addressed the Portland Academy of Medicine, April 16 on 'Newer Aspects of Experimental Cancer Research'.—The Oregon Tuberculosis Association held its annual meeting in Portland, April 2-3 with Dr Jay Arthur Myers, Minneapolis, as guest speaker.—Dr Frederick G. Thayer, Medford, addressed the Jackson County Medical Society, in Ashland, March 18 on 'Pain from Ear, Nose and Throat Conditions'.

### PENNSYLVANIA

**Society News**—Speakers before the Westmoreland County Medical Society at the Mountain View Hotel near Greensburg, April 9, were Drs. Leopold S. Vaccaro, Philadelphia, on workmen's compensation problems; Chauncey L. Palmer, Pittsburgh, on social security legislation and the special session of the Pennsylvania legislature; and Walter F. Donaldson, Pittsburgh, on hospitalization insurance.—Dr Jacob Arnold, Bergen, Rochester, Minn., addressed the Northampton County Medical Society, Bethlehem, April 24, on 'Origin and Treatment of Carcinoma of the Colon'.

### Philadelphia

**Society News**—Drs. Gabriel Tucker and George B. Ferguson presented a paper before the Philadelphia Laryngological Society, April 7 on 'Streptococcal Laryngitis in Children' and Dr. Karl Kornblum a paper entitled 'The Roentgenologist Looks at Sinus Disease'.—The Philadelphia College of Pharmacy and Science held its annual 'Science Day' exhibits open to the public, April 17-18.

**Personal**—Dr Charles H. Wilhite, for many years medical director of the Provident Mutual Life Insurance Company, has been made medical adviser and Dr Frank M. Beresford has been appointed medical director.—Philadelphia alumni of Ursinus College gave a testimonial dinner, March 27, at the Benjamin Franklin, to Dr James M. Anders in recognition of his forty-two years of distinguished service to that institution as a member of the board of directors.—Dr David Riesman was guest of honor at a banquet given by the Northern Medical Association of Philadelphia, March 17, celebrating its ninetyeth anniversary. Dr Arthur C. Morgan was toastmaster.

### VIRGINIA

**Society News**—The Medical Society of Virginia sponsored the division on public health and medical care of the annual meeting of the Virginia Conference on Social Work in Roanoke, March 19-21.—Dr Charles Hendee Smith, New York, addressed the Richmond Academy of Medicine, March 10 on 'Pneumonia in Childhood'.

### WASHINGTON

**Personal**—Dr Raymond L. Zech, Seattle, retiring president of the King County Medical Society, was guest of honor at a joint banquet of the society and the Seattle Bar Association, March 13, at the Olympic Hotel.—Dr William E. Steele, Olympia, has been appointed medical director in the state department of labor and industries to succeed Dr Harry Eugene Allen. Seattle resigned. Dr Harry L. Leavitt, Seattle, has been appointed assistant director to succeed Dr Steele.—Dr William M. Beach, Shelton, recently celebrated his completion of fifty years of medical practice.—Dr Myron

Shelby, Jared, Seattle, has been appointed chairman of the public relations committee of the Washington State Medical Association to succeed Dr Frank J. Clancy, who recently became director of the Bureau of Investigation of the American Medical Association in Chicago.

**Society News**—Dr Laurence Selling, Portland, Ore., addressed the Walla Walla Valley Medical Society, Walla Walla, Wash., April 9, on "The Anxiety Tension State and Its Treatment." This society at its March meeting unanimously adopted a motion to agree not to accept any contract for lodge practice.—Drs. Homer D. Dudley and Hilton W. Ro, Seattle, addressed the King County Medical Society, April 20 on "Sacculated Varix of the Femoral Vein" and "Cool Water Treatment of Burns" respectively.—Dr Howard L. Beve, professor of surgery, State University of Iowa, College of Medicine, Iowa City, addressed the annual meeting of the Tacoma Surgical Club on "Surgical Pitfalls and Their Prevention."

### WEST VIRGINIA

**Hospital News**—The Pinecrest Sanitarium, Beckley, has under construction a nurses' and physicians' home to accommodate forty nurses and two physicians with their families. The new building will cost \$82,000, provided from federal funds. Other projects at the sanatorium include barns to cost about \$38,000 and other improvements to cost \$23,000.

**Society News**—Dr Austin A. Hayden, Chicago, addressed the Cabell County Medical Society, Huntington, March 12 on medical economics.—Drs. Eldon B. Tucker, Morgantown, and Herbert H. Haynes, Clarksburg, addressed the Harrison County Medical Society, Clarksburg, March 5, on 'Present Status of Anesthesia in West Virginia' and "Carcinoma of the Rectum" respectively.—Dr Claude C. Coleman, Richmond, Va., addressed the Kanawha Medical Society, Charleston, March 10 on 'The Present Scope of Neurological Surgery'.—Dr John H. Wickoff, New York, addressed the Parkersburg Academy of Medicine, March 5, on "Congestive Heart Failure."

### GENERAL

**Date Changed for Public Health Meeting**—The American Public Health Association will hold its sixty-fifth annual meeting in New Orleans, October 20-23, instead of October 19-22 according to the *American Journal of Public Health*.

**Change in Date of Orthopedic Examination**—The date of the examination to be held by the American Board of Orthopaedic Surgery is changed from Monday, May 11 to Tuesday, May 12. The examination will be held at St. Luke's Hospital, Forty-Fourth Street and Mill Creek Parkway, Kansas City, at 9 a. m.

**Academy of Pediatrics**—The sixth annual meeting of the American Academy of Pediatrics will be held at the President Hotel in Kansas City, Mo., May 11-12. Monday morning will be devoted to round table discussions of asthma, childhood psychiatry, diagnosis of appendicitis in children, intestinal parasitic infections, passive prophylaxis against infection in childhood, physical appraisal of the child, prophylaxis and treatment of whooping cough, recent advances in nutrition, roentgenology of the thorax in children, sinusitis—indications for treatment, and treatment of the overweight child. There will be panel discussions in the afternoon on the problem of immunity to tuberculosis in childhood and cyanosis in the newborn. The evening meeting of state chairmen, Monday, will be devoted to a consideration of graduate education in pediatrics. Dr. John A. Toomey, Cleveland, will address the general meeting Tuesday on 'The Gastro-Intestinal Portal of Entry in Poliomyelitis'. and Drs. Richard Cannon, Elev., and Charles F. McKhann, Boston, 'The Clinical Application of the Blood Coagulant Extract Obtained from the Human Placenta'.

**Medical Bills in Congress**—Changes in Status. The House conferees on the War Department Appropriation Bill, H. R. 11035, have accepted the Senate amendment to the bill providing for the reestablishment of medical units in the Reserve Officers Training Corps. S. 4390 has been reported to the Senate, with amendment proposing to amend the National Defense Act relating to the Medical Administrative Corps so as to provide that appointments to the corps shall be restricted to pharmacists between the ages of 21 and 32 years who are graduates of recognized schools or colleges of pharmacy requiring four years of instruction for graduation and to provide that the number of such appointees shall not exceed sixteen. **Bills Introduced** S. 4508, introduced by Senator Byrne, South Carolina, proposes to provide a uniform rate of pension for unmarried Spanish-American War veterans without dependents while hospitalized and to extend hospitalization to per

sons recognized as veterans of the Spanish-American War under laws in effect prior to March 20, 1933 S 4516 introduced (by request) by Senator Robinson, Arkansas and H R 12460, introduced (by request) by Representative Driver, Arkansas, propose to authorize appropriations of \$5,000,000 and \$15,000,000, respectively, to enable each state to provide and operate at least one hospital bed for tuberculous patients to each annual death from tuberculosis in the state

**Safety Conference**—The fourteenth annual Midwest Safety Conference will be held at the Stevens Hotel, Chicago, May 57, under the auspices of the Chicago Safety Council, Illinois Industrial Commission, Keep Chicago Safe Committee and cooperating agencies Consideration will be given to fire prevention, the commercial vehicle, home safety, safety in handling materials, first aid, public safety, training and educational methods, occupational diseases, and safety equipment Speakers will include

George W Barton manager highway traffic department Chicago Motor Club Chicago Driver Tests—Their Uses and Limitations in the Commercial Vehicle Field

D Melville Carr director accident prevention service Chicago chapter American Red Cross Chicago Home Accidents—A National Problem

Dr Hart E Fisher chief surgeon Chicago Rapid Transit Company Chicago Personal Experience of the Value of First Aid Training in a Large Utility

Dr Royd R Sayers director industrial hygiene department U S Public Health Service Washington D C What the Industrial Executive Should Know About Occupational Diseases

Dr Clarence O Sappington consulting industrial hygienist Chicago Proper Type Use and Maintenance of Respiratory Protective Devices

**Society News**—The American Pharmaceutical Association will hold its annual meeting in Dallas, Texas, August 24-29—The American Neisserian Medical Society will hold its second annual meeting, May 18 at the Hotel Statler, Boston Dr Hans Zinsser, Boston will be the guest speaker his subject, "To What Extent Can a Bacteriologist Contribute to the Control of Venereal Diseases?"—The sixth annual meeting of the Biological Photographic Association will be held in Boston about September 17—Dr Alphonse R Dochez New York was named chairman of the executive committee of the Federation of American Societies for Experimental Biology at the annual meeting in Washington, and Dr Shields Warren, Boston, secretary Memphis, Tenn, was chosen as the city for the 1937 convention Officers elected by the American Society of Biological Chemists included Howard B Lewis, Ph D, Ann Arbor, Mich president and Henry A Mattill Ph D, Iowa City, secretary The American Society for Experimental Pathology elected Dr Dochez president and Dr Warren secretary Dr Frank C Mann, Rochester, Minn, was named president of the American Physiological Society, and Dr Andrew C Ivy, Chicago secretary Dr Velyien E Henderson, Toronto, Ont, was elected president of the American Society for Experimental Pharmacology and Therapeutics and Dr Eugene M K Geiling, Chicago, secretary—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will hold its annual meeting at the Hotel Washington Bretton Woods, N H, September 14-16 Dr James R Bloss, 418 Eleventh Street, Huntington, W Va, is the secretary

**The Woman's Auxiliary**—The March News-Letter of the Woman's Auxiliary to the American Medical Association is the Southern States number, reporting the activities of twelve organized southern states The Arkansas auxiliary has stressed promotion of annual physical examinations and other phases of health education Georgia sponsors a health education program on child psychology and heart disease The principal interest of the Kentucky auxiliary is its Jane Todd Crawford Memorial Project this organization, among many other kinds of work, has made a special study of tuberculosis and cancer Louisiana's auxiliary sponsors health education in cooperation with public schools such as essay contests and projects in which *Higiena* is used Mississippi is devoting its efforts this year to promotion and endowment of the preventorium at the Mississippi State Sanatorium North Carolina women maintain a bed at the North Carolina State Sanatorium called the McCam bed in honor of Dr and Mrs Paul P McCam, superintendent of the sanatorium, and his wife The bed is kept for the use of physicians and their families In Oklahoma the state auxiliary has furnished material to high school students for the debate on state medicine and several members have acted as judges South Carolina is placing special emphasis on its student loan fund for the use of physicians sons and daughters who lack money for medical courses Tennessee emphasized public relations and did much philanthropic work Public education is a major responsibility of the Texas auxiliary Alabama has carried out a program of public relations and health education and has a legislative program Florida has cooperated in state

programs on cancer control and heart disease and has made contacts with parent-teacher's associations In addition to special activities, many states have student loan funds and funds for indigent physicians, several have sponsored a "doctors day" all publicized the American Medical Association radio program during the winter, all did much philanthropic work, both independently and in cooperation with tuberculosis associations and the Red Cross, and many are preserving local medical history

### Deaths in Other Countries

Josef Jadassohn, for many years professor of dermatology at the University of Breslau, Germany, died, March 24 in Zurich, Switzerland, aged 72 Professor Jadassohn contributed to numerous textbooks and was an editor of various periodicals Among other important publications was his "Handbuch der Haut- und Geschlechtskrankheiten"—Friedrich Kraus died in Berlin recently Dr Kraus in 1894 was made professor in Graz and chief of the medical clinic In 1902 he succeeded Gerhard as chief of the second medical clinic of the Charite in Berlin, holding this title until 1926, when he was made emeritus

## Government Services

### Social Security Grants Totaling \$5,000,000

The Social Security Board announces allotments of federal funds totaling \$5,293,876 for grants-in aid to eight states with approved public-assistance plans These grants will match the states' expenditures for assistance to their needy aged, needy blind, and dependent children The states sharing in grants for April, May and June and the amounts authorized are as follows

State	For Assistance to	Federal Grant
Minnesota	Aged	\$ 721 875 00
Massachusetts	Aged	1 026 712 00
Oklahoma	Aged	433 427 00
Connecticut	Aged	221 812 00
Vermont	Aged	74 498 00
New Mexico	Aged	83 396 00
New Mexico	Blind	13 868 00
Oklahoma	Dependent children	154 422 67
New Mexico	Dependent children	24 327 50
<b>Total</b>		<b>\$2 754 338 17</b>

The board also announced the mailing of checks to the following states as grants-in-aid for their public assistance work during February and March

State	For Assistance to	Federal Grant
Ohio	Aged (for Feb and March)	\$1 611 875 00
Minnesota	Aged (for March)	105 000 00
Arkansas	Aged (for March)	78 400 00
Massachusetts	Aged (for Feb and March)	651 014 00
Utah	Aged (for March)	66 213 00
Utah	Blind (for March)	5 607 00
Utah	Children (for March)	19 548 00
Vermont	Children (for March)	1 881 00
<b>Total</b>		<b>\$2 539 538 00</b>

In the case of aid to the needy aged and blind, the federal grant matches the states' expenditures dollar for dollar up to a combined total of \$30 per month per person and also includes 5 per cent additional for the states administrative expenses In the case of aid to dependent children, the federal government pays \$1 for every \$2 disbursed by the states up to a combined total of \$18 per month for the first dependent child in a family and \$12 per month for each additional dependent child The federal government also pays one third of the states' administrative costs for this form of public assistance

To date thirty states and the District of Columbia have submitted public assistance plans which conform with the requirements of the Social Security Act, and these states are participating in the cooperative state federal system of aid provided by the act Among these are twenty-eight approved state plans for aid to the needy aged, eighteen approved state plans for aid to the needy blind, and seventeen approved state plans for aid to dependent children It is estimated that they provide assistance to approximately 500 000 aged individuals, 125 000 dependent children and 17 000 blind persons The federal contribution toward the care of these persons in all states whose public-assistance plans have been approved by the Social Security Board is expected to be more than \$14,000 000 for April May and June

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 21, 1936

#### Annual Report of Medical Research

The report of the Medical Research Council for 1934-1935, which has just been published contains a review of recent researches that the council has supported

#### NUTRITION

The council initiated research on rickets, which led to the discovery and isolation of vitamin D. It supported work on the dietetic factors that determine the production of perfect or imperfect teeth, as a result of which it is now practicable to improve greatly the structure of the teeth of the rising generation by proper feeding in childhood. It is responsible also for clinical investigations which showed that apart from dental structure decay of teeth can be slowed by diet.

#### THE DIET OF GROWING CHILDREN

One of the most practical investigations initiated by the council showed the effect of supplementing the diet of growing children with milk and other substances. In a carefully controlled test on children in institutions the addition of a pint of milk daily to what had been regarded as an adequate diet produced surprising benefits in height, weight, mental activity and general health.

#### ISOLATION OF ERCONOVINE

During the last thirty years, investigations have shown that ergot contains not one but a series of active principles. Early in 1935 a new alkaloid was isolated by a joint investigation of H. W. Dudley and J. C. Moir. It has been shown that this principle is mainly responsible for the obstetric value of ergot. Previous researches on the active principles of ergot showed a disparity between pharmacologic and clinical practice and some skepticism arose as to the value of watery extracts. When in 1932 Moir used a method for obtaining a quantitative record of the contractions of the puerperal human uterus it was at once clear that a watery extract administered by the mouth evoked vigorous contractions. This stimulant effect lasting for some hours was not produced by any of the known constituents of ergot or by any other known substance.

#### THE CURATIVE AGENT OF PERNICIOUS ANEMIA

During the past year Dakin and West published in America a method for preparing the active hematopoietic agent from liver in a much purer state than was formerly possible. This substance is a complex protein structure made up of amino acids and other groups. During the summer Dr. Dakin came to England and supervised the preparation on a manufacturing scale of hematopoietic liver extract principles. At the invitation of the council Professor Davidson, Prof. E. J. Wayne and Dr. C. C. Ungley tested this substance in cases of pernicious anemia and found it extremely potent. The effect of the liver treatment is shown in the official statistics of the death rate from pernicious anemia by a great fall up to the age of 65 after this age and especially by the age of 75 the rate has greatly increased.

#### THE PREVENTION OF PUERPERAL FEVER

It has long been known that a streptococcus which hemolyzes red corpuscles is responsible for most cases of puerperal sepsis but it has been recognized only in the last few years that the cocci with this property comprise several groups which are associated with other diseases such as scarlet fever, acute tonsillitis, erysipelas, whitlow, impetigo, wound infection and perhaps acute rheumatism. New technical procedures developed

at the Rockefeller Institute, New York, for the differentiation of the hemolytic streptococci have enabled workers at Queen Charlotte's Hospital, London, to reach the conclusion that the hemolytic streptococci occasionally found in the genital tract of healthy parturients are not, as was supposed, identical with those causing puerperal fever, and that they are indeed usually harmless. This suggests that pathogenic hemolytic streptococci which invade the genital tract have been conveyed from some outside source. In a large series of cases Dr. Dora Colebrook has traced these outside sources. She has shown that the streptococci of the respiratory tract have an intimate relation to puerperal fever. But the respiratory tract of the mother must be taken into account as well as that of her attendants, and familial sources have been incriminated in not a few instances. It is therefore dangerous for any person suffering from an acute infection of the respiratory tract to engage in maternity work. It is also unwise for nursing homes and small hospitals to deal with maternity and surgical cases under the same roof unless the nursing staffs of the two departments can be completely separated.

#### New Research Body for Tropical Medicine

The establishment of a tropical medicine research committee is announced. The decision to appoint this body has been taken by the Medical Research Council in consultation with the Colonial Office. The new committee will advise and assist in the direction of such investigations as the council may be able to promote, into problems of health and disease in tropical countries, and make suggestions generally as to research in this field. The committee will be a purely scientific body and will include representatives of the Colonial Office and of the London and Liverpool Schools of Tropical Medicine with others appointed as individual experts in tropical medicine or other branches of medical science. The following men will serve in the first instance: Prof. J. C. G. Ledingham, FRS (chairman), Prof. A. J. Clarke, FRS, Prof. W. W. Jameson, Edward Mellanby, FRS, Sir Leonard Rogers and Dr. C. M. Wenyon, FRS. Research in tropical medicine has always been a concern of the Medical Research Council but this has usually been performed in England. The council has not been able to assist investigations in the tropics except on isolated occasions. The present step indicates an intention to take a more active part in work in the colonial field.

#### The Subintoxicated Driver

In the house of commons a medical member, Dr. Alfred Salter, called attention to the danger of automobile drivers taking any alcoholic drink whatever. This point has previously been brought forward but not emphasized sufficiently. Dr. Salter said that all agreed that the intoxicated driver should be severely dealt with, but there was a greater danger of the subintoxicated—the man who was not drunk in the legal sense but was physiologically under the influence of alcohol. The minister of transport had expert advice on this matter, at his own request, but had done nothing to bring to the attention of the motorists the danger of taking any alcohol before or during driving. A committee of the British Medical Association came to the conclusion that there were serious objections to the consumption of alcohol in quite small amounts by any one who had to drive a car. At least 25 per cent of road accidents were due to the fact that the drivers had consumed small quantities of alcohol. They were not intoxicated but, as the British Medical Association said, subintoxicated. In an editorial the *Times* said: 'As things stand at present there would appear to be no absolute safeguard for the motor driver but total abstinence.'

In replying to the debate the minister of transport, Mr. Horc Belisha, said that traffic congestion was greater here than in any other country. The number of automobiles registered

to the square mile in Great Britain was twenty-three, in the United States it was seven. In regard to alcohol he identified himself with the view of the British Medical Association that there were serious objections to drivers taking even the smallest amount. But he could not prevent such men from driving. All he could do was call attention to the subject.

## PARIS

(From Our Regular Correspondent)

April 3, 1936

### Radiotherapy in Hyperthyroidism

Criticism has been directed against radiotherapy in the treatment of hyperthyroidism, first, because of the resultant pigmentation of the skin, secondly, on account of the production of a large amount of scar tissue around the thyroid and, thirdly, because the treatment requires too long an interval at times from two to three years. In a paper read before the Société médicale des hôpitaux, February 28, Gally and Levy stated that in reply to these objections, one could say that pigmentation did not take place if the technic was correct, that the scar tissue is a sequel of the disease and not of the radiotherapy according to Desplas, and that with the method employed by the authors a much more rapid result can be obtained. They utilize an apparatus capable of delivering 200,000 volts, a thick filter and a large field with a 50 cm distance of the tube from the skin. Large doses are given over as short a time as possible, to avoid too protracted a treatment. As an initial dose 3,000 roentgens is given and this is raised to 4,000 or 6,000 roentgens in severe cases. The total dose is from 10,000 to 12,000 roentgens followed by a rest of from four to six weeks before another series is given. During the past ten years 172 cases have been thus treated at the Necker Hospital after thorough examinations by well qualified internists and including a metabolism test in all cases. Seventy-six of the 172 were mild cases of hyperthyroidism with an increased metabolism of from 20 to 30 per cent; fifty-three were more serious, from 30 to 50 per cent, and twenty-five were very severe, from 50 to 70 per cent. In the first group all were cured or greatly improved, with doses of between 3,000 and 6,000 roentgens. Forty of the fifty-three in the second group were followed up and showed a decrease in the basal metabolism rate of from 20 to 30 per cent. The patients have increased in weight and there has been marked improvement in the symptoms of hyperthyroidism. This group was given from 6,000 to 10,000 roentgens. Three of the fifty-three patients were operated on and irradiated three months after operation. Of the third group (very severe cases) only two patients were obliged to be operated on, but even these two showed marked improvement after irradiation. The only way the success in all these groups can be explained is that the dosage of the irradiation was much higher than is ordinarily employed. No ill effects were noted in any of the cases. In the discussion Haguenau stated that he had examined the majority of the 172 cases both before and after irradiation and could confirm the results obtained by Gally and Levy. There are no contraindications to the treatment even in cases of functional cardiac symptoms. Lian stated that he had observed some good but also some mediocre results. He believed that subtotal thyroidectomy should be preferred to irradiation in the majority of cases, although with the improved technic suggested by Gally and Levy he might change his opinion.

### Pulmonary Atelectasis

In a symposium February 7 and 14 at the Société médicale des hôpitaux the first paper was by Carnot and Lafitte on subacute massive collapse with hemoptysis. A young girl in apparent good health experienced severe pain while exercising

in a gymnasium. An attack of dyspnea was followed by hemoptysis. On admission to the hospital marked cyanosis, dyspnea and retraction of the right half of the thorax were noted. A film showed considerable elevation of the right half of the diaphragm and a displacement of the heart to the right. A diagnosis was made of occlusion of the right main bronchus. The clinical picture was suddenly changed on the fourth day following expectoration of a clot. The symptoms disappeared completely. Although the clinical and radiologic picture is typical in such cases it is seldom recognized, there being only about ten reports of subacute collapse subsequent to a hemoptysis. One must exclude a spontaneous pneumothorax, but here there is expansion and not retraction. In some published case reports the symptoms persisted for as long as six days but ceased immediately after expulsion of a clot. The only treatment is to give expectorants and to combat the hemoptysis. Bronchoscopy is of no avail.

Save of Barcelona, Spain, on the other hand maintained that insufflation of iodized oil, determination of intrapleural pressure, pneumothorax, bronchoscopy and pleuroscopy have enabled him to diagnose the following types of atelectasis: 1. The acute massive form observed after injection of iodized oil, severe hemoptysis and following laparotomy. 2. A chronic irreducible total or lobar form. In cases of bronchiectasis obstruction of a main bronchus or of that of the lower lobe alone have been observed during a period of from ten to fourteen years. In less severe cases this is reduced to from five to seven years. This form of atelectasis is also seen in bronchial occlusion of intrinsic (cancer) or extrinsic (aneurysm) nature. 3. A chronic, slowly developing form. This is observed in primary tuberculous infections of children or adolescents as the result of compression of the bronchi by greatly enlarged lymph nodes. 4. Recurrent or migratory atelectases, seen in temporary occlusion of the bronchi in cases of endobronchial neoplasms. 5. In association with a pneumonia or pleurisy. 6. An incomplete form observed after hemoptyses of tuberculous or traumatic origin with more or less typical signs of parenchymatous involvement but without the presence of a lobar shadow. Elevation of the diaphragm and deviation of the mediastinum and trachea are found and can persist even after the pulmonary symptoms have disappeared. This form is no doubt due to the obstruction of small bronchi associated with a reflex or spastic factor. 7. A reflex form following pleuroscopy in which an adhesion has been touched without being divided. It is also seen in infants during an attack of asthma in the absence of any infection. In the future, more attention will have to be paid to the role of the nervous element in the production of atelectasis.

Kourilsky and Anglade reported experiments on dogs in which the bronchi were obstructed by foreign bodies, by ligation and by action on the nerve supply. Their conclusions are that: 1. The mechanical changes (mediastinophrenic parietal) occur several hours before there is any roentgenographic evidence. In this stage there is absorption of the alveolar air and dilatation of the pulmonary capillaries. 2. The experimental atelectasis is an inert condition of the lung and can undergo repermeabilization in several months or persist without cicatricial sclerosis or infection. 3. Occlusion of secondary bronchi does not yield an air shadow. 4. An atelectasis through irritation of the pulmonary nerves is very difficult to accomplish but it undoubtedly is a clinical entity. They conclude that clinically, atelectasis is a complication of other pulmonary lesions, of a mechanical or an infectious character.

Debré and his associates reported seven cases of pulmonary atelectasis of massive character in children due to compression of a bronchus by a tuberculous lymph node, by a foreign body and after anesthesia. A sudden sensation of suffocation accompanied by extreme dyspnea with intervals of rather dry irrita-



ing cough and the absence of fever should make one think of an acute massive atelectasis (collapse). This diagnosis can be confirmed by a roentgenographic examination. Bronchoscopy with extraction of a foreign body or aspiration of mucus is the best treatment for older children and, with improved technique, can no doubt be applied to infants later.

### Experimental Tuberculosis of Bone

According to Boquet and Laporte of the Pasteur Institute, injection of minute quantities of virulent tubercle bacilli of the bovine type has been followed in rabbits in every instance by osseous and articular lesions which resemble in every respect the histologic picture of tuberculous foci in human beings. The bacilli are carried to the bone by the hematogenous route. There seems to be a relation between such tuberculous localizations and any traumatism. The results of their experiments were reported by Boquet and Laporte at the January 13 meeting of the Academy of Science.

### BERLIN

(From Our Regular Correspondent)

March 16, 1936

### Notes on the Sterilization of Persons with Hereditary Disease

Hitherto the law to prevent propagation of hereditary disease provided for the sterilization of the tainted persons by surgical intervention only. Henceforth, on the basis of scientific experiments, sterilization by irradiation (roentgen rays or radium) will be permitted in special circumstances. The use of irradiation shall be restricted to cases in which (1) a woman is more than 38 years old, (2) owing to other factors surgical intervention might prove dangerous to the patient (3) on other medical grounds, irradiation of the genitalia is indicated. The woman's consent to the treatment is required, following treatment she must submit to three examinations and in exceptional cases to a second irradiation. The institutions and physicians undertaking this procedure shall be licensed by the minister of the interior.

Mention was made in THE JOURNAL, Sept 28, 1935, page 1051 of a growing opposition to sterilization. A public controversy has lately taken place with regard to this problem. A high ranking Württemberg judge named Goetz, a member of the superior court of hereditary health at Stuttgart, has declared in the *Deutsches Arzteblatt* the official organ of the German medical profession that the law 'places on the doctors a load of unusual responsibility, in that apart from their professional duties they are called on to execute judicial decisions by the performance of operations that serve no therapeutic purpose. This burden seems all the more onerous when the gynecologist performing the intervention has not participated in the previous proceedings and, as in some cases is practically without knowledge of the basis for the sterilization.' Goetz further stated that physicians so involved, while placing duty first experience at the same time a genuine inner reluctance if not disgust. 'At any rate they do not feel much at home in this new role of performer of sterilization operations.' Goetz goes on to speak in the manner of one well informed of the high position enjoyed by medical science and gynecology in Germany. Then he stresses the fact that the law permits but does not make compulsory the issuance of a sterilization order. The Stuttgart hereditary health tribunal has now thanks apparently to a conflict of conscience evolved a rather unorthodox interpretation. To avoid application of the law in certain cases of hereditary disease it is contended that objective prevention or propagation is by no means necessary but only that the likelihood of propagation be removed. Application of the law must be *volksverbunden* (in harmony with popular political concepts) and must not be at variance with the legislative

ideals of the National Socialist *weltanschauung*. Yet these ideals will suffer if, as a result of sterilization, a larger number of unmarried girls indulge in sexual intercourse, a line of conduct still regarded by a large part of the public as disgraceful. Accordingly the Stuttgart tribunal of jurisdiction does not enforce the sterilization law in the cases of certain unmarried girls of tainted heredity "so long as they remain single. Differentiation is thus made between the ability to procreate and the danger of procreation.

Now, as expected, this stand has found opponents in the governmental quarters most concerned, notably in the national public health service commission and specifically in an official of the national health bureau. However, the most vigorous foe of the Stuttgart tribunal's attitude is the national father of medicine, Dr. Wagner, who takes particular exception to the assertion of Judge Goetz that physicians feel their duties under the sterilization laws as a "crushing burden." According to Dr. Wagner the contrary is true, the doctors, he says "cooperate cheerfully in the performance" of these duties.

An article by Dr. Friese, director of the department of racial hygiene of the national public health service commission voices the same disinclination to allow exceptions. This author speaks of those persons with superior endowments who at the same time present symptoms of hereditary disease. He is opposed to exempting such persons from the application of the laws (despite the fact that many judges have made exceptions in particular cases of this sort). The genius of the people as a whole will not suffer if in these rare instances persons with high superior endowments are prevented from propagating. Friese repeatedly emphasizes the idea that no one shall be otherwise discriminated against on account of sterilization. He further considers it erroneous to speak of a person with hereditary disease being 'saved' from sterilization. Such an expression, he says, is no more reasonable than if one were to speak of a man being 'saved' from military service or a woman 'saved' from motherhood.

Divergent opinion with regard to this problem has been reflected by other happenings. The controversy that took place at the International Hospital Congress at Rome last May is an example. A report of this affair appeared in an official German source, *Der öffentliche Gesundheitsdienst*, organ of the national public health service commission and other governmental bodies. According to this report (which is based on Italian advices) the German delegation requested that, in addition to the principal topic of the gathering the congress should take up the question of sterilization. The Netherland physicians opposed the motion and it was tentatively decided to postpone any such discussion until the next congress, in Paris in 1937. Next the pope in the course of receiving the delegation declared that were other countries to adopt the official German attitude toward sterilization it would signify a reversion to paganism. At the final session of the congress the Netherland delegates introduced a resolution censuring Professor Schultze of Munich an official of the health administration, whose demands were offensive to the religious and ethical sensitivities of a section of the delegates. The Spanish, the Irish and in particular the French delegations also ranged themselves against the German proposal. The French delegates said that their government would refuse to sponsor the gathering if the subject of eugenics and sterilization was to be discussed. It was then voted that the topic would not be taken up by the next congress.

Most interesting is the recently developed Swiss attitude toward sterilization. In an article in the *Schweizerische medizinische Wochenschrift*, the Basel gynecologist Professor Labhardt emphatically characterizes as unsatisfactory and dangerous all contraceptive devices such as occlusive pessaries, cup pessaries and in particular, intra uterine instruments, an attitude similar to that of the German partisans (THE JOURNAL, Aug 24 1935).



p 611) He assumes a connection between the constant manipulations of the vagina and uterus and the amazing increase in the number of tubal pregnancies in recent years. The University of Basel clinic records 1078 sterilizations for all indications during the years from 1920 to 1934. In five of seven fatal cases recorded, death was caused by embolism and the patients were women who had undergone an operation for correction of the position of the uterus and on whom sterilization had been performed as a secondary measure. In such cases the fatal outcome cannot be attributed to the sterilizing treatment. With regard to the efficacy of the operation (subperitoneal tubal resection according to Labhardt's own method) no subsequent intra-uterine pregnancy occurred in any of the cases although three instances of subsequent tubal pregnancy were noted. To determine somatic and psychic results 652 of the women patients were submitted to a questionnaire. Of this number, 612 women expressed themselves as pleased with the operation. Forty women refused to commit themselves and five of these manifested a feeling of inferiority.

With regard to sterilization of men (by ligation of the spermatic cord) no postoperative psychic or physical changes were observed in 300 cases reported by the Basel urologist Professor Suter.

Some further ideas of Professor Labhardt coincide with a resolution passed by the Basel Medical Society, a body which at the instance of the public prosecutor's office has examined the question. According to the society's pronouncement sterilization is considered a legitimate measure (1) when indicated by medical conditions or (2) when indicated as a eugenic measure to prevent transmission of hereditary disease (this is the fundamental concept of the German legislation but the Basel group refrains from entering into details) and finally be it considered that (a) the examination of whether or not this or that individual person or married couple should have offspring is abandoned (b) the prevailing economic situation forces many married couples to practice an intelligent birth control (c) chemical, mechanical and other contraceptive measures are unreliable are in some instances dangerous and in no case insure against pregnancy, (d) birth control by interruption of pregnancy (abortion) when practiced repeatedly is absolutely inadmissible, (e) as a result of the legal restriction of contraceptive measures however, women frequently resort to abortions. It is therefore the duty of the physician to aid in checking the abortion evil and to suggest a better way out of the difficulty. Operative sterilization provides an adequate solution for many married couples. In the absence of both medical and eugenic indications, sterilization should be carried out on a couple who are already the parents of healthy children and who submit a written request with full explanation of the circumstances.

Labhardt's acceptance of official German medical opinion is far from complete. The Swiss and German attitudes are frequently divergent, even antagonistic.

A word should be said about marriages contracted by sufferers from hereditary disease. According to an official of the ministry of justice there is nothing to prohibit a sterilized man from marrying a sterilized or naturally barren woman. But marriage between a person of sound heredity and one of tainted heredity is a different matter. A fundamental legal decision approved by the ministry of justice applies in such cases whereby a person of healthy heredity is prohibited from marrying a person of tainted heredity even when the latter has been rendered sterile. According to the National Socialist Anschauung, the *raison d'être* of marriage is essentially if not entirely the breeding of healthy offspring for the maintenance of the nation. This concept forms the underlying justification for the prohibition of marriage between a person of healthy heredity who possesses the ability to procreate and a person who is sterile.

## RIO DE JANEIRO

(From Our Regular Correspondent)

March 15, 1936

### Sodium Arsenite in Treatment of Leishmaniasis Americana

Prof Aguar Pupo of the Faculty of Medicine of São Paulo has published a preliminary report on his results in a large number of cases from intramuscular injections of sodium arsenite in the treatment of leishmaniasis americana of the skin. Sodium arsenite, when administered through the muscular route diffuses into the circulation quickly and does not accumulate in the liver. When it is given by mouth, a large portion of the drug goes to the liver through the portal vein and becomes fixed there (hepatic arsenicopexis). A dose half as large as that used for oral administration was given by the author in the first cases of cutaneous leishmaniasis americana treated by the intradermal route. The dose resulted in cure of the cutaneous lesions. Because of the resistance of the lesions of the mucosa however, and the tolerance of the patients to the drug it was found that a dose of either 0.005 Gm three times a week or 0.01 Gm twice a week offers the best results. In these cases calcium chloride should be given simultaneously by mouth because, owing to its desensitizing and diuretic properties, it protects the kidneys and increases the tolerance to the drug. Sodium arsenite is an official drug accepted by international pharmacopeias and the preparation of the solution for intramuscular injections is easy. It has advantages also over the antimony and potassium tartrate because the latter should be given intravenously. Acute arsenicalism in its several forms, such as nitritoid crises, desquamative erythrodermia and acute yellow atrophy of the liver, which may complicate the use of arsenical compounds when given in large doses does not complicate the sodium arsenite treatment because of the small doses employed.

### Botelho's Diagnostic Seroreaction in Cancer of Uterus

Dr Castro Stebe Jr of the Faculty of Medicine of Rio de Janeiro has published "Técnica e resultados da Soro-Reacção de Botelho e sua aplicação em Gynecologia," a book in which he reports positive results in twenty-one cases of cancer of the uterus. The tumors were atypical epithelioma in one case, carcinoma in ten cases, epithelioma in two cases, spinocellular epithelioma in six cases, mixed carcinoma in one case and benign tumor in one case. The author fully reviews the subject and concludes that Botelho's seroreaction permits the making of a diagnosis in 90 per cent of the cases. It is also important because it permits the administration of early treatment. The serologic diagnosis should be verified however by careful clinical examination of the patients. The author's results show that there is a perfect accord between the histopathologic diagnosis and the results of the reaction.

### Brazilian Medical Congresses

The first Congress of Urology recently held at Rio de Janeiro, was attended by delegates from France, Germany, the United States, Belgium, Italy, Argentina, Chile, Uruguay and other countries.

The first Brazilian Congress for the Study of Cancer was recently held in Rio de Janeiro under the auspices of the Sociedade de Medicina e Cirurgia of Rio de Janeiro.

The first Congress of Regional Medicine was held last December in Bahia.

The first Medical Congress of Ceara was held in January in Ceara with the attendance of the majority of the physicians of the northern states of Brazil.

## Marriages

GLEN D. LARRISON, Morocco, Ind. to Mrs. May Mosier Martin of Kankakee, Ill., in Aurora, Ill., January 3

JAMES ROBY GUDGER, Scarsdale, N. Y., to Miss Irene Cornelia Dobias at Prague, Czechoslovakia, February 3

SAMUEL V. GRANATA to Miss Ruth Steegall, both of Beaumont, Texas, January 12, at Lake Charles, La.

THOMAS GREGORY DOUGHERTY to Miss Kathleen Cecelia Brock, both of New York, February 22

MILLARD S. ROSENBLATT, Portland, Ore., to Miss Carolyn Guthman of Seattle, February 22

EDWARD C. HOLSCHER, St. Louis, to Miss Dorothy Hagar of Cambridge, Mass., recently

ROBERT E. GARY to Miss Eunice Annette Greene both of Waycross, Ga., February 25

WILLIAM P. STEPHENS, Portsmouth, Va., to Miss Hilda Spear of Atlanta, Ga., February 22

WILLIAM A. K. SEALE to Miss Ilene Fleniken, both of Sulphur, La., February 9

WILLIAM A. GARDNER, Atlanta, Ga., to Miss Rorie D. Stewart at Decatur, February 22

## Deaths

Arthur Baldwin Duel, New York, Harvard University Medical School, Boston 1894, member of the American Laryngological, Rhinological and Otological Society, member and past president of the American Otological Society, and chairman of the board of trustees of the Research Fund, trustee and formerly vice president of the New York Academy of Medicine, fellow of the American College of Surgeons, honorary fellow of the Societe de laryngologie des hopitaux de Paris, professor of otology at the New York Polyclinic Medical School and Hospital, 1908-1913, surgeon-director of the ear department, Manhattan Eye, Ear and Throat Hospital, consulting aural surgeon to the Babies, Stuyvesant Square, New York Health Board and New York Post-Graduate hospitals, Flushing (N. Y.) Hospital and the Englewood (N. J.) Hospital, was chairman of a committee that organized examination of airmen during the World War, was the author of the chapter on otology in various systems of medicine and with others wrote "Nursing in Diseases of the Eye, Ear, Nose and Throat", for many years a member of a subcommittee of the Noise Abatement Commission, aged 65, died, April 11, at his country home at Laurelwood.

Proceso Gabriel, Manila, P. I., University of Santo Tomas College of Medicine and Surgery, Manila 1903, member of the Philippine Islands Medical Association, formerly vice dean, professor of hygiene, sanitation, preventive medicine and epidemiology at his alma mater, at one time lecturer on infant mortality, University of the Philippines College of Medicine, for many years a member of the Council of Hygiene of the Bureau of Health, aged 58, died recently, of heart disease.

William Mason Cott, Okmulgee, Okla., St. Louis College of Physicians and Surgeons, 1896, member of the Oklahoma State Medical Association, past president of the Okmulgee County Medical Society, for fifteen years member of the board of education, aged 66, on the staff of the Okmulgee City Hospital, where he died February 7, of thrombosis of the left arm and right leg and infection of the lung due to fracture of the ribs in an accidental fall.

Alice Mary Seabrook, Beverly Hills, Calif. Woman's Medical College of Pennsylvania, Philadelphia, 1895, member of the Medical Society of the State of Pennsylvania, at one time vice president of the National Hospital Association, for ten years a member of the State Board of Registration for Graduate Nurses in Pennsylvania, for eighteen years medical superintendent of the Woman's Hospital, Philadelphia, aged 79, died March 10.

John M. Brister, Medical Director, Rear Admiral, U. S. Navy, Washington, D. C., Medico-Chirurgical College of Philadelphia, 1898, entered the navy in 1900, inspector of the medical department activities, bureau of medicine and surgery of the Navy Department, fellow of the American College of Surgeons, aged 58, died April 10 in the U. S. Naval Hospital of coronary thrombosis.

William Henry Oates, Mobile, Ala., Bellevue Hospital Medical College, New York, 1898, past president of the Mobile County Medical Society, chairman of the county board of health, veteran of the Spanish-American and World wars, one time state prison inspector, trustee of the Alabama Polytechnic Institute, Auburn, aged 64, died, March 1, of pneumonia.

Joseph Samuel Cohen, Easton, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1907, health officer of Easton, formerly assistant demonstrator of physical diagnosis, Medico-Chirurgical College of Philadelphia, aged 51, on the staff of the Easton Hospital, where he died, March 7, of carcinoma of the hepatic ducts and bronchopneumonia.

Abdu M. Ibrahim, Northampton, Mass., Tulane University of Louisiana School of Medicine, New Orleans, 1922, member of the Medical Society of the State of New York and the American Psychiatric Association, aged 47, on the staff of the Veterans Administration Facility, where he died, January 15, of coronary sclerosis and thrombosis.

Thomas Allen Clark, Mount Vernon, Ill., St. Louis University School of Medicine, 1904, member of the Illinois State Medical Society, past president and secretary of the Jefferson-Hamilton County Medical Society, aged 61, died, January 2, in the Missouri Baptist Hospital, St. Louis, of acute dilatation of the heart and ulcer of the duodenum.

Howard Lester Farquhar, Pittsburgh, University of Pennsylvania School of Medicine, Philadelphia, 1916, member of the Medical Society of the State of Pennsylvania, fellow of the American College of Surgeons, on the staff of the South Side Hospital, aged 46, died, January 30, of cerebral hemorrhage and essential hypertension.

Philip Joseph Sheridan, Oil City, Pa., New York Homeopathic Medical College and Flower Hospital, 1908, member of the Medical Society of the State of Pennsylvania, served during the World War, aged 51, medical director of the Grandview Sanatorium, where he died, March 12, of tuberculosis of the lungs.

Thomas Ethelbert McConnell, New Kensington, Pa., Western Pennsylvania Medical College, Pittsburgh, 1891, member of the Medical Society of the State of Pennsylvania and the American Academy of Ophthalmology and Otolaryngology, aged 66, died in January of coronary occlusion and arteriosclerosis.

Louis M. Weinfield, San Antonio, Texas, Southwestern University Medical College, Dallas, 1905, member of the State Medical Association of Texas, formerly member of the state board of health, served during the World War, aged 63, died March 13, of lymphosarcoma of the mediastinum with metastases.

Helena Knauf Wink, Jamestown, N. D., University of Michigan Department of Medicine and Surgery, Ann Arbor 1883, member of the North Dakota State Medical Association, aged 81, died, February 16, in a local hospital, of burns received when gasoline with which she was cleaning clothes exploded.

Louis Bazet, San Francisco, Jefferson Medical College of Philadelphia, 1876, formerly member of the city and state boards of health, aged 87, at one time on the staffs of the San Francisco Polyclinic and the French Hospital, where he died February 21, of arteriosclerosis and chronic myocarditis.

Henry Joseph Eugene Newnam, Waymart, Pa., Jefferson Medical College of Philadelphia, 1905, formerly assistant demonstrator of obstetrics at his alma mater, on the staff of the Fairview State Hospital, aged 53, died, March 14, in St. Joseph's Hospital, Carbondale, of pneumonia.

Vaughn Rhea Eleazer, Cho, S. C., Medical College of the State of South Carolina, Charleston, 1933, member of the South Carolina Medical Association, aged 34, died, January 30, in the Newberry County Hospital, Newberry, of complications following an operation for appendicitis.

George S. Marbarger, New Ringgold, Pa., Jefferson Medical College of Philadelphia, 1894, member of the Medical Society of the State of Pennsylvania, for many years member of the school board, secretary of the town council, aged 74, died March 7, of cerebral hemorrhage.

Royal Shepherd Loving, Major, M. C., U. S. Army, Fort Lewis, Wash., served during the World War, was appointed a captain in the medical corps of the U. S. Army in 1920 and in 1929 was promoted to major, aged 58, died January 22, of coronary thrombosis.

Daniel Wadsworth Frye, Pittsburgh, Western Pennsylvania Medical College, 1897, member of the Medical Society of the State of Pennsylvania, served during the World War, aged 65, died February 9, in the Mercy Hospital, of osteitis fibrosa cystica and cerebral hemorrhage.

**Christian Frederick Jappe**, Davenport, Iowa State University of Iowa College of Medicine, Iowa City, 1895, member of the Iowa State Medical Society, formerly on the staffs of St Luke's and Mercy Hospitals, aged 76, died, February 3, of endocarditis and myocarditis

**Earl Donahue Brewer**, New York, Washington University School of Medicine, St Louis, 1927, assistant neurologic surgeon to the Neurological Institute and assistant consulting neurologic surgeon to the Vanderbilt Clinic, aged 30, died, January 25, of heart disease

**Frank A Osincup** ☉ Waverly, Iowa, College of Physicians and Surgeons of Chicago, 1893, past president of the Bremer County Medical Society, for many years mayor of Waverly on the staff of St Joseph Mercy Hospital, aged 73, died, January 31, of heart disease

**William Fred Seidler** ☉ Belleville N J, Bellevue Hospital Medical College, New York, 1891 also a pharmacist formerly on the staffs of St James Hospital and St Michael's Hospital, Newark, aged 75, died, February 22, as the result of a fall in his home

**John William Bowman**, Lemoyne, Pa Jefferson Medical College of Philadelphia, 1877, member of the Medical Society of the State of Pennsylvania, formerly school director and member of the state legislature, aged 89, died, February 15, of bronchopneumonia

**Arthur John Taylor**, Hop Bottom, Pa, Jefferson Medical College of Philadelphia 1890, member of the Medical Society of the State of Pennsylvania, bank president, formerly county coroner, aged 71, died, February 17, of senile dementia and arteriosclerosis

**Donald Badenoch McGee**, Leavenworth, Kan University of Michigan Medical School, Ann Arbor, 1933, member of the Michigan State Medical Society, intern at the U S Penitentiary Hospital, aged 30, died, February 13, of poison self administered

**Earl William O'Donnell** ☉ Los Angeles, College of Physicians and Surgeons, Los Angeles, 1915, served during the World War, on the staff of the Queen of Angels Hospital aged 44, was killed, February 16, when his automobile skidded and overturned

**Walter D Martin**, Los Angeles State College of Physicians and Surgeons, Indianapolis, 1907, served during the World War, formerly connected with the U S Veterans Bureau, aged 53, died, February 26, of acute coronary thrombosis

**John Leaming McBride** ☉ Pittsburgh University of Pennsylvania Department of Medicine Philadelphia, 1906 member of the Associated Anesthetists of the United States and Canada aged 57, died, February 5, of a self inflicted bullet wound

**Mary Anna Israel Nettle**, Parker, Ariz, Howard University College of Medicine, Washington, D C, 1905, formerly physician in the Indian Service aged 54, was found dead, March 3, of an overdose of morphine, self-administered

**Abraham T Welker**, Collomsville, Pa, University of Pennsylvania Department of Medicine Philadelphia 1886 member of the Medical Society of the State of Pennsylvania, aged 78, died, February 7, of hemiplegia and arteriosclerosis

**Jacob Lindsey Short**, Houston, Texas, University of Texas School of Medicine, Galveston 1896 member of the State Medical Association of Texas, aged 62 died February 4, of coronary thrombosis and hypertensive heart disease

**R N Herbert Harsh**, Nashville, Tenn, University of Nashville Medical Department 1892 served with the American Red Cross during the World War aged 63 died, January 26, in a local hospital of carcinoma of the lung

**William Skidmore Ellis**, Jonesboro Ark, Berumont Hospital Medical College, St Louis, 1893 also a minister aged 76 died February 21, in St Bernard's Hospital of injuries received when he fell out of a moving automobile

**Frederick William Gilbert**, Ridgewood N J Bellevue Hospital Medical College, New York 1897, on the staff of St Joseph's Hospital, Paterson aged 62 died, February 12 of myocarditis, endocarditis and chronic nephritis

**Russell Calvin Kelsey**, Portland Ore Physio Medical College of Indiana Indianapolis 1888, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1890, aged 78 died, January 31

**Homer Augustus Wall**, Ochlocknee Ga University of Georgia Medical Department, Augusta 1892 member of the Medical Association of Georgia aged 67 died January 27, of angina pectoris hypertension and nephritis

**Arthur Sumner Hayden**, Des Moines Iowa, State University of Iowa College of Homeopathic Medicine, Iowa City, 1896, member of the Iowa State Medical Society, aged 73, died, January 25 of hypostatic pneumonia

**Michael E Kapinya** ☉ Pittsburgh Magyar Kiralyi Pázmány Petrus Tudományegyetem Orvosi Fakultása Budapest, Hungary, 1920 aged 42 died January 27, of carbon monoxide poisoning due to fumes from a gas stove

**Fowler Lyons**, Turbotville Pa Jefferson Medical College of Philadelphia, 1891 also a druggist member of the Medical Society of the State of Pennsylvania, aged 75, died, February 8, of angina pectoris and arteriosclerosis

**James Coad Riordan** ☉ Pocahontas, Iowa Rush Medical College, Chicago, 1894, past president and secretary of the Pocahontas County Medical Society, aged 67, was found dead in bed, February 7, of myocarditis

**George William Packer**, Fall River, Mass College of Physicians and Surgeons, Boston, 1903 member of the Massachusetts Medical Society, city physician aged 56, died, March 4, of coronary occlusion

**Henry P Gerlach**, West Palm Beach, Fla Medical College of Ohio Cincinnati 1880, aged 77, died January 31, in the Good Samaritan Hospital, of a cerebral hemorrhage, due to injuries received in a fall

**Smith A Hoge**, Rices Landing Pa College of Medicine and Surgery, Chicago, 1901, member of the Medical Society of the State of Pennsylvania, aged 66, died suddenly, January 28 of coronary occlusion

**Dennis E Fisher**, Ncedmore Pa Baltimore Medical College 1883 member of the Medical Society of the State of Pennsylvania, aged 82, died, February 26, of arteriosclerosis and chronic myocarditis

**James King Hatchett**, Scotland Ark (licensed in Arkansas in 1903), aged 67, died, February 7, in the Baptist State Hospital, Little Rock, of myocardial insufficiency, shock and adenocarcinoma of the cecum

**Henry Miller Sultzbach**, Lancaster, Pa Medico-Chirurgical College of Philadelphia, 1894, member of the Medical Society of the State of Pennsylvania, aged 67, died, February 4, of lobar pneumonia

**David H Hain**, Sinking Spring Pa Jefferson Medical College of Philadelphia, 1881, aged 76, died, February 21, in the Reading (Pa) Hospital, of septicemia, as the result of an abrasion on his hand

**George Stewart Murphy**, Los Angeles, John A Creighton Medical College Omaha 1896, aged 67, died, February 7, in the National Military Home, Sawtelle, of bronchopneumonia and diabetes mellitus

**George Bourne Ferguson**, New York Bellevue Hospital Medical College New York, 1894, member of the Medical Society of the State of New York, aged 68 died recently, of cerebral hemorrhage

**August Henry Bethke**, Marshalltown, Iowa Bennett College of Eclectic Medicine and Surgery, Chicago, 1905, aged 69, was asphyxiated February 2, as the result of fumes escaping from a gas heater

**Albert Hamilton Story**, Augusta, Ga, University of Georgia Medical Department Augusta 1880 aged 76 died January 29, of cerebral hemorrhage, valvular heart disease and arteriosclerosis

**William Cline Allen** ☉ Blairstown N J, University of the South Medical Department Sewanee, Tenn 1895 Jefferson Medical College Philadelphia, 1896, aged 64, died, February 7 of pneumonia

**Raymond E Heacock**, Bethlehem Pa Eclectic Medical College, Cincinnati 1911 member of the Medical Society of the State of Pennsylvania, aged 46, died, March 6 of cardiovascular disease

**Louisa Eastham Blattner**, St Louis, American Medical College St Louis 1894 aged 74 died February 10 in the City Hospital of a skull fracture received when struck by an automobile

**Augustus Moen Hurlbutt**, Glenbrook Conn College of Physicians and Surgeons Medical Department of Columbia College New York, 1879, aged 81, died March 2, of coronary occlusion

**William Henry Green** ☉ Bridgewater Iowa Drake University Medical Department Des Moines 1903 aged 61 died February 10, in the Methodist Hospital, Des Moines, of osteomyelitis

**George Franklin Brown** ♂ Sherman, Texas, Bellevue Hospital Medical College, New York, 1897, on the staff of St Vincent's Sanitarium, aged 65, died, February 4, of heart disease

**Hugh T Crouch**, Bardwell, Ky, Missouri Medical College St Louis, 1882, past president and secretary of the Carlisle County Medical Society, aged 80, died, February 19, of pneumonia

**John Thomas O'Brian**, Ridgefield Park, N J, University of Vermont College of Medicine, Burlington 1925, aged 33, died, February 16, in St Mary's Hospital, Passaic, of pneumonia

**Albert L Boen**, Knoxville Ark, University of Arkansas School of Medicine, Little Rock, 1907, member of the Arkansas Medical Society, aged 67, died, February 5, of cerebral hemorrhage

**Allan McNally**, Louisville Ky, Louisville Medical College, 1894, member of the Kentucky State Medical Association, aged 63, died, February 11, of acute dilatation of the heart

**John R Boatwright**, Linton Ky, St Louis College of Physicians and Surgeons, 1915, member of the Kentucky State Medical Association, aged 55, died, February 6, of pneumonia

**John Jesse Carroll Rembert** ♂ Okmulgee Okla, University of Tennessee College of Medicine, Memphis, 1914, county health officer, aged 53, died February 12 of septicaemia

**Robert M Campbell**, Denver Denver College of Medicine 1893, police surgeon, aged 68, died February 11, in the Denver General Hospital, of injuries received in an automobile accident

**Raymond John Striegel**, Long Beach Calif, University of Buffalo School of Medicine, 1921, member of the California Medical Association, aged 39, died, February 26, of pneumonia

**Bayard Sullivan**, Palo Alto Calif, Vanderbilt University School of Medicine Nashville Tenn 1909, served during the World War, aged 50, died, February 9, of cerebral hemorrhage

**John Thomas Vansant**, Paris, Ky, New York Homeopathic Medical College, 1879, member of the Kentucky State Medical Association, aged 82, died, February 14, of coronary thrombosis

**Thomas Wilson Powers**, Birmingham, Ala, Louisville (Ky) Medical College, 1903, aged 60, died March 10, in the Norwood Hospital, of septicaemia following an injury of the foot

**Benjamin C Williams**, Cambridge, Mass, Maryland Medical College, Baltimore, 1902, Middlesex College of Medicine and Surgery, Cambridge, 1923, aged 71, died January 1

**Josiah Adams Simpson**, San Francisco, Cooper Medical College, San Francisco, 1891, aged 73, died in February in St Joseph's Hospital, of myocarditis and arteriosclerosis

**George B Wade**, Jacksboro, Texas, University of Tennessee Medical Department, Nashville 1890, aged 71, died, recently, in a hospital at Fort Worth of heart disease

**Llewellyn Phelps Barbour**, Rialto, Calif, Western Reserve University Medical Department, Cleveland, 1882, aged 76, died, March 8, of lobar pneumonia and arteriosclerosis

**Louis J Guier**, Cartago, Costa Rica, Central America, Jefferson Medical College, Philadelphia, 1909, aged 54, died, March 31, of cerebral hemorrhage and heart disease

**James Daniel Baucum** ♂ Longview, Texas, University of Louisville (Ky) Medical Department 1910, county health officer, aged 46, died, February 7, of heart disease

**Stephen F O'Brien**, Hillsboro Ky, Eclectic Medical Institute, Cincinnati, 1892, aged 67, died March 15, in the Hayswood Hospital, Nashville, of cardiorenal disease

**John C Hunter**, Apollo, Pa, College of Physicians and Surgeons Baltimore 1893, aged 70, was found dead February 26, of a bullet wound, probably self-inflicted

**Felice Bongiorno** ♂ Waltham, Mass, Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy 1919, aged 42, died February 20, of coronary thrombosis

**Joseph Schwartz Musgrove**, Idalou, Texas, University of Nashville Medical Department, 1908, aged 58, died March 4, of coronary occlusion and hypertension

**Charles Purnell Smith**, Martinsville, Va (licensed in Virginia by the Exemption Law of 1885), aged 74, died January 17, of carcinoma of the prostate

**Walter Herschel Kidder**, Oswego, N Y, University of Buffalo School of Medicine 1893, aged 68, died February 25, of myocarditis and bronchopneumonia

**George D Pendell** ♂ Derby, Kan, Beaumont Hospital Medical College St Louis 1891, aged 72, died February 18, in a hospital at Wichita, of influenza

**Samuel Hartley Hagler**, Austin, Texas, Tulane University of Louisiana Medical Department, New Orleans (Ky) aged 59, died suddenly in February

**George Troy Bailey** ♂ Chicago, Northwestern University Medical School, Chicago, 1894, aged 71, died recently, of coronary sclerosis and arteriosclerosis

**John Peter Strunk**, Andale, Kan, St Louis University School of Medicine 1933, aged 29, died, February 3, in a hospital at Wichita, of septicaemia

**Charles Wyche**, Charlotte Hall, Md, College of Physicians and Surgeons, Baltimore, 1893, aged 64, died, January 27, of a gunshot wound, self inflicted

**Charles Henry Paige**, Fort Dodge, Iowa, University of the City of New York Medical Department, 1880, aged 48, died, February 19, of nephritis

**George Davidson Tallman**, Van Wert, Iowa, Marion University of Medicine, St Louis, 1898, aged 73, died, February 1, of tricuspid insufficiency

**William Patrick Donovan** ♂ St Louis, St Louis University School of Medicine, 1923, aged 39, was killed March 15, in an airplane accident

**Lemuel Lafayette Jones**, Greenville, Texas, University of Louisville (Ky) Medical Department, 1887, aged 80, died February 14, of pneumonia

**Edwin Eareckson**, Philadelphia, Jefferson Medical College of Philadelphia 1882, aged 78, died, February 27, of chronic myocarditis and nephritis

**Robert Arthur Jones**, Birmingham, Ala, University of Louisville (Ky) Medical Department, 1886, aged 70, died March 11, of pneumonia

**David Broderick Hanna**, Stoneboro, Pa, Jefferson Medical College of Philadelphia, 1884, aged 75, died, February 6, of cerebral hemorrhage

**Joseph L Abeln**, Dubuque, Iowa, St Louis College of Physicians and Surgeons, 1900, aged 57, died, February 21, of coronary thrombosis

**Edward Gordon Baker**, Wangan, Mo, Barnes Medical College, St Louis, 1897, aged 64, died, February 11, of coronary sclerosis

**George Stewart Kirby**, Mauch Chunk, Pa, Hahnemann Medical College of Philadelphia, 1882, aged 75, died, March 3, of heart disease

**Eli Browning**, Mediapolis, Iowa, State University of Iowa College of Medicine, Iowa City, 1894, aged 78, died, February 10, of pneumonia

**Adolphe Paul Delcourt**, Hammond La, University of Louisiana Medical Department, New Orleans, 1901, aged 56, died, January 26

**John C Norcott**, Little Rock, Ark, Memphis (Tenn) Hospital Medical College, 1891, aged 77, died, February 25, of lobar pneumonia

**Edward A Crueger** ♂ Philadelphia, Medico Chirurgical College of Philadelphia, 1894, aged 74, died, March 12, of heart disease

**Najeeb Mitry Saleeby** ♂ Baguio P I, Bellevue Hospital Medical College, New York, 1897, aged 64, died recently, of heart disease

**Stephen Edward Maddox**, Fayette Ala, Chattanooga Medical College, 1901, aged 64, died, February 13, of cerebral hemorrhage

**Hugh Thomas Blackledge**, Commerce Mo, St Louis Medical College, 1888, aged 72, died, February 18, of chronic myocarditis

**Adolph J Neas**, Parrottsville, Tenn, Medical Department of Grant University, Chattanooga, 1900, aged 65, died, January 30

**Clara Emerette Gary**, Boston, Boston University School of Medicine, 1885, aged 75, died, February 15, of hemiplegia

**Elkanah Payne** ♂ Lakeview, Texas (licensed in Texas under the Act of 1907), aged 64, died, January 14, of pneumonia

**J Frank Houston**, Alexandria, Ky, Medical College of Ohio, Cincinnati, 1888, aged 77, died, February 21

**W W Heard**, Marshall, Ark (licensed in Arkansas in 1903), aged 82, died, January 24, of heart disease

**Frank Hanna**, Walnut Iowa (licensed in Iowa in 1889), aged 87, died, February 10, of chronic prostatitis

**L K Robertson**, Parks, Ark (licensed in Arkansas in 1903), aged 90, died, March 8, of senility

## Bureau of Investigation

### DILEX-REDUSOLS

#### A Dinitrophenol Nostrum Declared Fraudulent and Debarred from the United States Mails

Now YOU too can take off pounds of ugly fat the safe easy quick way! NO DIETING NO SELF DENIAL NO STRENUOUS EXERCISES! Sounds too good to be true?

These are the words of a typical alluring advertisement for "Redusols." And it was too good to be true. For the Postmaster General declared that the Dilex Institute, the Dilex Institute Inc., the Dilex Method, Madeline M. McCarthy, and their officers and agents were engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.

Women with beautiful figures, as shown in the accompanying illustration were prominently featured in the Dilex advertising. Indeed, the copy was so arranged that the reader might easily assume that the glorified damsel represented had herself reduced by the use of the Dilex Compound.

"Reduced 37 pounds with Dilex Redusols" writes Mrs. H. H. Langley. Beneath this statement as will be seen appeared the picture of a svelte example of femininity clad in a somewhat abbreviated undergarment. Closely thereto is the further statement "Note Mrs. Langley used the safe Dilex-Redusol method over a period of 10 weeks." By this clever arrangement of advertising copy the exploiter gave the impression that the alluring figure was that of Mrs. Langley in person when, as a matter of fact, the picture was not that of Mrs. Langley, but one posed by a professional model.

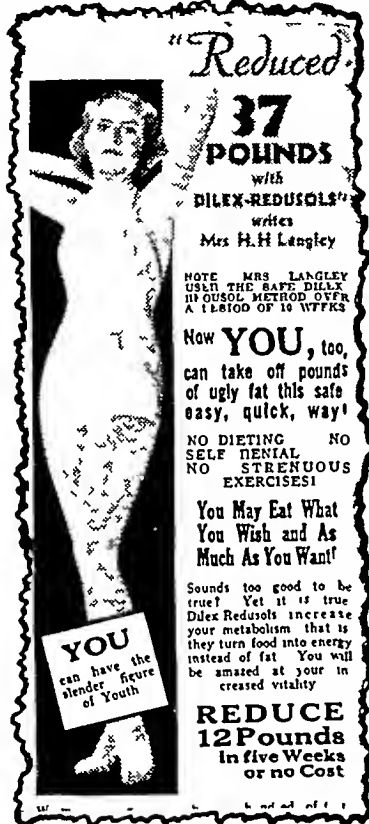
The advertisement also reproduced what were termed reports of amazing reductions of from 35 to 50 pounds and without harm. The Bureau of Investigation might also have added the pitiful story of a Vermont woman who lost 30 pounds but who received in exchange a persistent numbness of both legs granular opacities in the lenses of both eyes—cataracts—and a blurring of both optic discs from the safe easy and quick Dilex-Redusols.

Prospective victims—and the reports indicate that some 75 to 100 persons ordered this nostrum daily at \$3 per order in response to the 'come-on' advertisements—received a letter signed by Mrs. Madeline M. McCarthy reading in part:

I have your inquiry and am enclosing you herewith a leaflet descriptive of REDUSOLS. With these capsules you can take off weight safely and easily as our physicians advocate.

REDUSOLS are absolutely harmless when taken in accordance with the directions. They do not contain thyroid and will have no negative reactions.

Patent medicine advertising is generally at some pains to state what the product does not contain but seldom if ever, what it does contain. Mrs. McCarthy calls attention to the



**"Reduced"**  
**37 POUNDS**  
with  
**DILEX-REDUSOLS**  
writes  
**Mrs. H. H. Langley**

NOTE: MRS. LANGLEY USED THE SAFE DILEX REDUSOL METHOD OVER A PERIOD OF 10 WEEKS.

Now **YOU**, too, can take off pounds of ugly fat this safe easy, quick, way!

NO DIETING NO SELF DENIAL NO STRENUOUS EXERCISES!

**You May Eat What You Wish and As Much As You Want!**

Sounds too good to be true? Yet it is true! Dilex Redusols increase your metabolism that is they turn food into energy instead of fat! You will be amazed at your increased vitality!

**REDUCE 12 Pounds in five Weeks or no Cost**

**YOU** can have the slender figure of Youth

absence of thyroid, but, of course, does not mention dinitrophenol. All will agree most heartily that Dilex may have "no negative reactions", reports in medical literature on dinitrophenol contain numerous accounts of most positive harmful reactions.

Following the modern advertising trend of misleading general statements such as "Doctors endorse," "Physicians say," "Hospitals and nurses recommend," sales manager McCarthy did not hesitate to refer to "our physicians" in the first paragraph of the "come-on" letter, it was implied that the Dilex concern employed a staff of medical advisers. Actually, the Dilex Institute did not employ any physicians, but occasionally an available physician was consulted. The occasionally-consulted physician on questioning by the post office authorities, "thought" that the Dilex capsules contained less than one grain of dinitrophenol. Even this information, however, was not correct, according to the report of the government analyst. The treatment actually consisted of ninety two grain capsules containing a mixture consisting of one and one-half grains of dinitrophenol and one-half grain of milk sugar. With true "patent medicine" callousness, the exploiter nevertheless advertised.

Read your daily newspapers and magazines—heed their warning against the use of drugs taken unknowingly as far as the results and reactions are concerned. You are safe with DILEX REDUSOLS can be taken without any possibility of injury to the system.

The repeated statement in the Redusols advertising that the nostrum was "absolutely harmless" is, of course, an obvious falsehood. The representation contained in the advertisements that Dilex-Redusols are effective because they "remove the cause of obesity," was without foundation and just another lure to the obese. There is no scientific justification for representing that anything containing the powerful and dangerous dinitrophenol ever removed the cause of obesity, unless it permanently removed the patient.

During the hearing, Mrs. McCarthy, who was sales manager for the Dilex outfit, claimed she had reduced her own weight 30 or 40 pounds with Redusols, and without harmful effects. Perhaps she had decreased her weight at one time to 138 pounds, but the post office officials noted that it had thereafter perceptibly increased. At the time of giving testimony she was obviously obese and overweight and refused to get on the scales to permit ascertaining her present weight. Moreover, laboratory reports of examination of Mrs. McCarthy's blood, which she produced, revealed significant decreases in the number of white blood cells, which at one time amounted to 50 per cent. This, however, she blamed on "marital inharmonies" [sic] rather than Redusols.

A New York physician—one Robert G. Carlin—who was "occasionally consulted" by the Dilex people displayed a lamentable lack of knowledge concerning various important matters connected with obesity, dieting, and the determination of the deleterious effects of dinitrophenol. He admitted that he could not define or describe such an elementary dietetic term as the calory, that he could not name the secretions of the pancreas and that he could not state which group of white blood corpuscles should be studied in a blood examination to detect agranulocytosis or granulocytopenia. And yet he was set forth as a consultant!

#### SUMMARY

The postal authorities found the officers of the Dilex Institute owner of the Redusols business—President William H. Door, Vice-President Maybelle Ryerson, and Secretary-Treasurer Dorothy T. Simms—to be the perpetrators of a scheme for obtaining money through the mails by means of false and fraudulent pretenses, and recommended that a fraud order be issued. The Postmaster General closed the United States mails to these concerns on January 11, 1936.

The postoffice inspectors are to be congratulated on bringing to a close this particular vicious piece of quackery—an exploitation directly to the public of a secret nostrum for reducing which obtained such effects as were secured primarily by its content of dinitrophenol, a drug already established as potent for harm.



## Correspondence

### DIPHTHERIA WITH SCARLET FEVER

*To the Editor*—A boy, aged 6, was seen February 23, at which time a diagnosis of scarlet fever was made from the typical history and appearances. The temperature was 102 F, the throat was red with markedly enlarged tonsils, and a bright rash was present. February 28 a follicular tonsillitis developed; the temperature ranged between 101 and 103 F. March 2 the follicles became confluent to form a membrane, which covered both tonsils. The membrane appeared like the usual streptococcic membrane—bright yellow. It did not appear or behave like a diphtheritic membrane. A culture, however, was taken after great effort, the patient being very uncooperative. This culture came back unsatisfactory. A second culture taken came back positive for diphtheria bacilli, which were subsequently shown to be virulent by a virulence test. Antitoxin was then administered, 10 000 units followed in twenty-four hours by 5 000 more. It was given intramuscularly. No antitoxin was given at the time the culture was taken because it was felt that the membrane was of streptococcic origin and because the mother claimed that, at the age of 3, the boy was immunized with three doses of toxin-antitoxin and was negative to the Shick test. This was verified by communication with the doctor who did the immunization.

With the appearance of the membrane, the temperature ranged from 100 to 101 F. The day before the administration of antitoxin there was a bloody discharge from the mouth. The temperature dropped to normal and the membrane disappeared following the administration. At present there appear to be no sequelae from either the scarlet fever or the diphtheria. Subsequent cultures from the nose and throat were negative for diphtheria bacilli. All laboratory work was done by the branch laboratory of the state department of health.

Diphtheria coexistent with scarlet fever is about one in every ten thousand cases. This case serves to remind us that the immunity conferred by toxin-antitoxin or toxoid is only relative and not absolute, that a bloody discharge from the nose or throat should always suggest diphtheria and that it is important to take cultures on all membranes and to administer antitoxin.

ALEXANDER ZABIN, M.D., Malverne, N. Y.

### BARBITURATES AND IRRADIATION

*To the Editor*—On page 1236 of THE JOURNAL, April 4, appears an abstract of Uhlmann's paper "Roentgen Reaction Elicited by Medicament" (*Deutsche med. Wochenschr.* 62:216 [Feb. 7] 1936). While "on the basis of the clinical manifestations a medicinal toxicoderma was thought of" and a history of the ingestion of barbituric acid derivatives was elicited, the author did not bring out the fact that barbiturates and the barbituric acid derivatives produce porphyrimia and porphyrinuria and therefore cause sensitization to light. Porphyrinemia and porphyrinuria cause a sensitization of the skin (and probably other tissues) to irradiation; consequently it is advisable that patients who are to be subjected to roentgen or radium therapy should not be given any of the barbiturates or their derivatives. I have seen two instances of what were to all external appearances roentgen erythemas, one of which had been diagnosed as 'x-ray burn,' but which were due to 'sleeping tablets' taken by the patients at the same time that the roentgen therapy was received. These did not recur when the phenobarbital was discontinued even though the x-ray dosage was increased in one case.

I. S. TROSTLER, M.D., Chicago

### LEUKEMIA WITH THROMBOCYTOSIS

*To the Editor*—A case report on leukemia with thrombocytosis by Dr. Carl C. Drake (THE JOURNAL, March 2, p. 1005) omits two important points: first, the mechanism of bleeding in thrombocytosis and, second, the commonly occurring diseases with unusually high platelet counts.

The paradoxical bleeding in the presence of unusually high platelet counts is due to vascular injury from embolic phenomena rather than to any diminution in the blood clotting function. This interpretation with a case citation of 1,300 000 platelets per cubic centimeter was given in my paper on the management of hemorrhagic problems in infancy and childhood (THE JOURNAL, Sept. 10, 1932, p. 895).

Primary thrombocytosis, or thrombocythemia, was first described by Pianese in *Haematologica* (1:61, 1920), simultaneously by di Guglielmo (*ibid.*, p. 303) and subsequently by other observers as indicated in Dr. Drake's report. Secondary thrombocytosis is prevalent in polycythemia, lymphogranulomatosis and chronic myelosis. Marked increase in platelets is due to diminished destruction by the spleen, as demonstrated more recently by Epstein and Goedel (*Virchows Arch. f. Path. Anat.* 292:233, 1934). Tissue injury by severe infection or surgical trauma stimulates the production of platelets independent of other blood cells. Thus mere thrombocytosis is no criterion of latent leukemia.

I. NEWTON KUGELMASS, M.D., New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### TREATMENT OF ARTHRITIS BY BEE VENOM

*To the Editor*—I will appreciate it if you will advise me as to the treatment of arthritis by bee venom therapy as advocated by Beck in his book published by the D. Appleton Century Company.

PARKS M. KING, M.D., Charlotte, N. C.

*ANSWER*—The idea that rheumatism of various kinds can be cured by bee stings belongs to folk lore and is found in the earliest medical writings. Attempts have been made from time to time to place this form of treatment on a scientific foundation, but it has been abandoned many times, only to be revived by the persistent testimony of bee keepers and laymen. Almost without exception, medical reports have been inadequate, even if interesting—inadequate because little if any attempt has been made to study the subject scientifically, to present controls or to classify accurately the type of rheumatic diseases treated. The terminology used in most of these reports (and also that by Beck) is most indefinite and indicates a lack of real familiarity with the diseases concerned. Thus the terms "rheumatoid heart affections," "endocrine polyarthralgia," "arthritis deformans," "arthritis" and "cases of true rheumatic origin" are used repeatedly without definition.

Beck expressed the opinion that the venom therapy has been abandoned repeatedly only because of difficulties inherent in the use of live bees. This difficulty is now obviated by the availability of commercial preparations of bee venom: apiscan, immenin, and apisin and British bee venom. By his review of the rather voluminous literature that has appeared on the subject during the past seventy-five years, and by his presentation of a collection of testimonials from bee keepers and laymen, Beck has attempted to "stimulate the medical profession to take this effective remedial agent out of the hands of the laity" and to prove that almost all true arthritis and rheumatism can be radically and permanently cured by bee stings. But just what is "true arthritis"? What are cases of true rheumatic origin and just what is a "radical cure"? The author exhibits a marked lack of critical appraisal of his bibliographic material; accepts statements regarding "marvelous results" without question; and when a bee keeper writes that he or a friend was cured of rheumatism by bee stings, the letter assumes the importance of a scientific certified document.

According to Beck, rheumatic conditions are "due to a local relative state of suboxidation produced mainly by an impaired



circulation" caused by "vasoconstriction of sympathetic nerve endings" (Since when have nerve endings vasoconstricted?) Thus, "tissue anemia is the cause of arthritis," and the pathologic explanation of rheumatism and of arthritis is the accumulation (suboxidation) of lactic acid in affected tissues. The therapeutic value of venom presumably is mainly the result of its hemorrhagic property, it contains an endothelotoxin (hemorrhagin) which causes capillaries to become permeable to blood. By accelerating and intensifying circulation and by dilating capillary vessels, bee venom enables blood cells to transmute into tissues. The physiologic effect of bee venom is therefore, according to Beck, comparable to histamine, which currently has been advanced by some for the treatment of various rheumatic diseases.

These ideas on the etiology and pathology of rheumatic diseases are not in accord with those accepted by the greater number of writers on the subject and are apparently borrowed from other writers with no support from the author whatever. (In an attempt to find some clearer exposition of Beck's point of view, other statements by him on bee venom or on rheumatic diseases were looked for in the *Cumulative Index Medicus* from 1916 to date but no article by him on any subject is listed.) The gross error in Beck's presentation is that he has omitted entirely any details of his own experience with treatment. Not a single record of a personal case is included, no statistics of his own results are given, and no controls are presented. His case is made up entirely from the generally unscientific and, therefore, unacceptable writings of others.

It is stated that patients with "arthritis and rheumatism" possess an unusual or pathologic immunity to bee venom but that patients with tuberculosis, syphilis and gonorrhea are unusually sensitive to it. In spite of the arthritic patient's unusual immunity, it is repeatedly stated that the results from injections of bee venom in arthritis arise through the production of a slow, gradual, progressive and comfortable immunization. It is not made clear to the reader how one can immunize a patient who is already immune. A variety of diseases presumably are successfully treated. According to Beck, bee venom therapy is almost specific for rheumatic fever and endocarditis, its results are 'very good' in Bechterew's spondylitis. It is indicated in rheumatoid arthritis, myalgia, myositis, neuritis, migraine and even traumatic arthritis. It will also cure acute and chronic gout (presumably also the result of suboxidation). There is not the slightest original proof by Beck in support of most of these statements. A sentence here or there permits one to suspect that all is not as painted. Although infection is considered a minor factor in the production of rheumatoid arthritis, Beck said "the removal of infected foci will be only too helpful." Beck's description of the plan of dosage, of the technic of administration and of the reactions to be sought or avoided are inadequately and unclearly presented. The questioner is referred to the book. Beck unfortunately leaves the problem just about where he found it. Certainly, the place of bee venom therapy in rheumatism, particularly in the treatment of rheumatic diseases, is not materially strengthened by this book. It may have some value but it still remains for some one else to demonstrate this scientifically.

#### POSSIBILITY OF LEAD POISONING FROM SPRAYED APPLES

To the Editor—The assistant at the U. S. Entomological Laboratory at Carlisle, Pa. makes the statement that there may be enough lead in sprayed apples even after they are pared to give symptoms of lead poisoning to those eating them. Will you tell me whether this statement is in line with authoritative opinion? Please omit name.

M. D. Pennsylvania

ANSWER—Instances of lead and arsenic poisoning have been reported which were believed to be due to the ingestion of fruit and vegetables that had been sprayed with insecticide. C. N. Myers and his associates at the Stuyvesant Square Hospital, New York, examined specimens of a large number of fruits and vegetables obtained from the open market in the fall of 1932 to determine the amount of arsenic and lead present. Their results were published in *Industrial and Engineering Chemistry* (25:624 [June] 1933). In the specimens of apple pulp examined, the amount of lead present varied from 0.38 to 1.8 mg per hundred grams of solids of the specimen. In the specimen of apple core examined the amount of lead present varied from 16 to 199 mg per hundred grams of solids present in the specimen. The amount of lead present in the unwashed apple skin in the specimens examined varied from 0 to 8.36 mg per hundred grams of solids in the specimens. Various commissions in different countries have considered the minimum amount of lead and arsenic remaining on fruits that have been sprayed, and in April 1933 the Food and Drug Administration

announced that 0.014 grain per pound, or 2 parts of lead per million would be permitted, and that the arsenic would remain at  $\frac{1}{100}$  grain per pound, or 14 parts per million of As<sub>2</sub>O<sub>3</sub>. These figures are said to agree with those set up by a British royal commission dealing with a similar problem. While Myers and his associates feel that the spray residue situation menaces the general well being the available evidence indicates that the consumer need not ordinarily fear acute poisoning when he eats fruit or vegetables. However, it is well to wash thoroughly and to cleanse such materials before putting them on the table in either the raw or the cooked form, and perhaps to strip and destroy the outer layers of lettuce, cabbage and similar vegetables that lend themselves to such manipulations. This subject was discussed in an editorial in *THE JOURNAL*, July 8, 1933, page 126.

#### TRICHOMONAS VAGINITIS

To the Editor—The physician who has a properly powered microscope in his office and uses it on all chronic vaginal discharges is finding plenty of *Trichomonas vaginalis* beyond all expectations when he started his profession a few years ago. The doctor not microscopically equipped so as to examine fresh smears cannot do justice to his patient for I find this disease one of the most intractable of the female complaints that come to the physician. Therefore I am asking what you consider the most effective of the various methods used to combat the malady just how do you apply the treatment and how long do you think the average case will have to stand by before the doctor can proclaim the patient cured beyond a doubt? Again I find patients coming to me who are accommodating their husbands right along. If he does not resort to the toilet after intercourse with plenty of soap (or none at all) where does he get off as a carner? Also what becomes of the parasite on his sexual organs? In spite of the soap pyrolytic acid Laszlar's paste treatment which I mostly use some are mighty stubborn to yield and the time to get final results is considerable and the expense is worse. So this is why I am anxious to canvass the results of your experience to see whether you can recommend anything better than I am using. Have you heard that brine (saturated solution of salt) will beat all other remedies of the past—a recent one sprung on me? If so how do you use it? Kindly omit name.

M. D. Maine

ANSWER—There can be no dispute that *trichomonas vaginitis* is commonly observed in gynecologic practice. The clinical picture and nature of the discharge are so characteristic that the alert physician will readily recognize the condition. The microscopic examination of fresh vaginal secretion diluted with physiologic solution of sodium chloride or even with distilled water is the most immediate means of corroborating the presence of the protozoa. Every physician who practices gynecology should be equipped to establish the correct diagnosis in cases of vaginitis and genital infections in general. There is no specific treatment of *trichomonas vaginitis*, nor can there be so long as there is as yet no unanimity of opinion concerning the pathogenicity of *Trichomonas vaginalis*. Many different plans of treatment have been described, ranging from the radical 'soap scrubs under general anesthesia' to the simple vaginal irrigation with hypertonic salt solution or even with large quantities of plain tap water. Goodall reported specificity for the treatment with 1 per cent trinitrophenol in vaginal suppositories containing oroglyceride and other medicaments, followed by vaginal douches. However, many American clinicians have observed that recurrence frequently followed this as well as other forms of treatment. Some women are relieved by a single or at most a few local treatments, while others suffer repeated recurrences, notably after the menses. In severe forms, several months' observation is required in which to make check-up examinations, and smears following each menstrual period are necessary to establish the fact of cure. A form of treatment that has yielded a high percentage of cures is the following. After the fresh smear has revealed the presence of pus and large numbers of active trichomonads the vagina is thoroughly washed with tincture of green soap with a large cotton swab or preferably with gauze. This is rinsed with water dried and then swabbed with 1:5,000 solution of potassium mercuric iodide and again dried. A gauze sponge (Handy-fold sterile gauze) soaked in glycerin is then packed into the vagina and left for twenty-four hours. The patient is instructed to wear a pad as the hygroscopic action of the glycerin causes a profuse watery exudation. On removal of the gauze pack, an irrigation is taken in the recumbent position with 4 cc of lactic acid (U. S. P.) to each liter of warm water. For aggravated cases, two or more liters should be used twice daily. The treatment is repeated every second day for three or four applications until relief is noted and the appearance of the vaginal mucous membrane is normal. The irrigations are continued throughout the months until menstruation appears. Some clinicians even advise their use during the period. After menstruation and at least forty-eight hours after the last irrigation a smear is taken and a soap-glycerin treatment is given. If there has been no recurrence, the patient may simply use

home irrigations daily and return after the next period. On the other hand, if recurrence is noted, three treatments are given as before. This procedure should be repeated monthly for about six months. Even then, recurrences or reinfections may occur from time to time. As the source of trichomonas infection is unknown, one cannot advise concerning adequate prophylaxis. There is insufficient evidence at hand that the husband is a source or carrier of trichomonas infection. The parasite dies quickly on drying. Urethral and prostatic secretions in the male yield *Trichomonas* only in a small percentage of cases.

#### HAZARD FROM METAL FOIL ON CHOCOLATE

*To the Editor*—Will you kindly have me informed if there is any evidence that the metallic foil used as a wrapper about chocolate and candies (as Hershey's or Wilbur's chocolate huds) is injurious to the consumer? They sometimes do have a metallic taste.

CHARLES STOVER, M.D., Amsterdam, N. Y.

*ANSWER*—Metal foils used as wrappers long have been regarded as having a high lead content. Some foil wrappers for tea contained (1921) from 40 to 48 per cent of lead, the remainder being mostly tin. At that time foils for cheese contained approximately 92 per cent tin, 7 per cent lead and 1 per cent copper. In 1921 the most commonly used foil was made up as follows: Tin, 96.21 per cent, copper, 0.95 per cent, lead, 2.41 per cent, iron, 0.09 per cent, nickel, 0.30 per cent. At the present time a typical foil such as for cheese contains 96.8 per cent tin and 3.2 per cent antimony, together with a trace of iron. In addition to tin foil, much aluminum foil is in use. The high resistance of aluminum foil to corrosion is said to be due to the presence of a nonporous adherent oxide film. For many purposes metal films are lined with paper as a barrier between the metal and the food or other substance within the wrapper. Likewise certain foils are coated with lacquers or related chemicals, also to avoid direct contact between the metal and foods. Although there has been much agitation over aluminum as a toxic substance, little reason exists for believing that small quantities accidentally ingested as a foil may be regarded as harmful. This statement also applies to tin. At this time the content of lead in domestic foils is so low as to introduce no large hazard. The presence of antimony may be regarded with suspicion, but here again no evidence is at hand indicating injuries to consumers. It may be maintained that foils used as wrappers for foods may be regarded as dangerous in proportion to their content of lead and antimony, and in proportion to the extent that they enter the body either as foil or in solution after contact with food or otherwise.

#### INDUSTRIAL HAZARDS OF WELDING

*To the Editor*—Please advise me of the industrial hazards of electrical welding with covered rods. A patient comes to me with the following story. He and his father operating a machine and welding shop purchased some welding rods under the trade name of Rego No. 333 A. These rods smoked profusely when used and seemed to cause headaches. The patient's father after working all day using these rods complained of headaches and severe pain in the chest and died about midnight. The attending physician stated that his death might have resulted from the smoke or fumes generated in the welding process. The patient, a well developed, well nourished man of 26 states that he has pains in the anterior chest region and believes them due to using these welding rods. Physical examination reveals nothing abnormal. He states that he was examined by a specialist in the city about a month ago with no abnormal observations. The patient believed that the death of his father resulted from using these welding rods. L. M. DILLMAN, M.D., Houston, Mo.

*ANSWER*—Early death after exposure to the gases and fumes from welding operations is fairly frequent. Death and illness are not associated with any particular type of rod or any particular coating. Products of any one manufacturer are not known to be more dangerous than those of other manufacturers producing similar material. For these reasons it is unwise that this reply should be directed especially to the one product named. It is believed that specific information on this product can be obtained from the Weldcraft Equipment Company, Pittsburgh, or the Bastion Blessing Company, 240 East Ontario Street, Chicago. Further portions of this reply are with reference to the hazards of welding in general. A fatality following electrical welding with coated rods is reported by Willman (*J. Indust. Hyg.* 17:129 [Jul.] 1935). In this instance the welding was on galvanized iron and undoubtedly the fumes contained both zinc and iron. Under other conditions of exposure such other metal fumes as copper, cadmium or lead may arise. Carbon monoxide may arise during welding work as cited by Schwarz in accounting for the death of two workmen doing oxyacetylene welding (*Zentralbl. f. Gewerbehyg.* 6:3 [April] 1929). Another death is reported by Holzmann

in the last cited journal (5:233 [Aug.] 1928). In addition to the hazards already mentioned, acetylene may contain arsenic and phosphine toxic impurities. The most encountered action attributable to welding gases and/or fumes is metal fume fever, characterized by low grade respiratory irritation, malaise, chills, anorexia and nausea. The direful cases are prone to arise from edema of the respiratory tract, pulmonary hemorrhage or promptly developing pneumonia. There are good reasons to believe that welding gases may occasion acute cardiac episode, or may at least acutely aggravate preexisting cardiac conditions. The death of this workman in fact might be linked up with his employment as described by the information made available, but the information does not permit a definite stand against the particular product mentioned or against welding in general.

#### EFFECTS OF RADIUM ON TISSUE OF FEMALE GENERATIVE TRACT

*To the Editor*—Two years ago last summer I sent a patient to the hospital for radium for a moderate sized fibroid accompanied by profuse hemorrhages. The profuse hemorrhages ceased following the radium but occasional fairly regular short menstrual periods with scanty flow have occurred since that time. The pelvic mass has grown smaller and the general health of the patient has greatly improved. About six weeks ago following a scanty flow a vaginitis developed the mucosa was red and swollen but rather dry and there was no discharge whatever. This condition improved but after a certain amount of improvement it seemed to remain fairly stationary. Hot douches made it worse. Local applications of neo-silvol brought about considerable improvement. There is some sagging of both the anterior and the posterior vaginal walls with moderately poor perineum. Most of the soreness and swelling at present seem to be on the posterior vaginal wall and the patient complains of soreness when she sits in a chair. Being on her feet a long time seems to make her feel worse but she complains frequently of feeling worse in the morning than she does at night. Now I suspect this is one of those types of vaginitis which come near the menopause and is rather persistent to deal with. I should like to ask whether the use of radium has anything to do with it. I should also like to ask what treatment would be suggested. Has amniotin or similar preparations proved efficacious in this type of vaginitis? Please omit name. M. D. Ohio.

*ANSWER*—Subsequent to radium treatment there is frequently an obstruction of the cervix with more or less complete retention of secretion. The retained material is highly irritating and when it escapes into the vagina even a small amount of secretion may produce intense burning. Most patients who suffer from vaginal discomfort from this cause give a history of slowly established or prolonged brownish menstrual flow, and attempted passage of a small Hegar dilator may reveal a cervical obstruction.

Dryness of the vagina ascribable to menopausal decreased endocrine activity may also cause irritation. In such cases the oral administration of estrogenic substance may bring relief.

Despite the apparent absence of a discharge *Trichomonas vaginalis* vaginitis or infection with other organisms should be ruled out by examination of fresh material as well as by stains of the vaginal secretion.

#### TESTS OF ACIDITY AND ALKALINITY OF URINE

*To the Editor*—Kindly give me the technique for the use of methyl red and thymolphthalein in testing the acidity and alkalinity of the urine and the significance of the result of such tests.

J. HOWARD GOULD, M.D., Ridgewood, N. Y.

*ANSWER*—A search of the literature has not revealed any article advocating the use of the two dyes methyl red and thymolphthalein for the determination of acidity and alkalinity of the urine. However, similar dyestuffs are used both in the form of "mixed indicators" and individually for the determination of hydrogen ion concentration.

One such mixed indicator, advocated by Moir in 1917, contains methyl red and naphthol phthalein and phenolphthalein. Another, described by Niklas and Hock, "one volume 0.04 per cent bromcresol purple, four volumes 0.04 per cent bromphenol blue, six volumes 0.02 per cent methyl red and four volumes 0.04 per cent bromthymol blue," has a range of from 3.5 to 7.6. Felton used equal parts of methyl red and bromthymol blue for the range 4.6 to 7.6 (unsatisfactory between 5.6 and 6.2), methyl red and bromcresol purple 4.6 to 7.0, methyl red and thymol blue (rough) 1.2 to 9.0.

More detailed information concerning these indicators can be found in Clark's "Determination of Hydrogen Ion Concentration" third edition, 1928, page 97. In this volume, as well as in Peters and Van Slyke's, "Quantitative Clinical Chemistry," the exact procedure may be found for the use of various dye stuffs for the colorimetric determination of the hydrogen ion concentration of urine in accordance with the methods of Hastings and of other workers.

DERMATITIS—CASTOR OIL—ADMINISTRATION OF  
POTASSIUM IODIDE

To the Editor—1 I have a patient with a moderate sized patch of chronic eczema on the back of the neck of some years duration. I have tried U S P pine tar ointment and lately full strength U S P chrysarobin ointment locally and have succeeded in stirring up no reaction whatever except over a ring of normal surrounding skin. Can you suggest any other local applications or treatments of any sort that might stir up this chronically diseased area and thus stimulate formation of more normal outgrowing skin? 2 On page 53 of the second edition of *Useful Cathartics* edited by Fantus the statement is made that because of thoroughness and reliability of action it [castor oil] is the purgative of choice for delicate invalids and infants in pregnancy. Does Dr Fantus mean only in early pregnancy or does he mean that the terrible fear of most doctors and laymen concerning the use of castor oil in pregnancy (and especially in late pregnancy) is unfounded? Being somewhat surprised at seeing this some time ago in my cathartic bible I would like some elaboration on this statement. 3 How is potassium iodide best administered so as not to leave an after taste? Is there not a more palatable form in which to administer opiates to infants than paregoric? Paregoric smells good but is strong and gags almost any infant. Diluting it with water seems only to prolong the agony. Or perhaps my experience has been unusual. Is infant tolerance to morphine more proportional to fraction of weight or of age or of both as compared to adult dosage? Are infants relatively more or less tolerant to morphine than adults or proportionately about the same?

THOMAS GRAY HARVEY MD Maine

ANSWER—1 such an area of dermatitis needs stronger applications than these official ointments, which are merely of such strength as to suit the average case. The N F solution of coal tar, for instance which for average use needs to be diluted with 10 parts of water, might be employed in such case as the one cited in greater concentration, even up to full strength. 2 Castor oil may safely be given with caution in ordinary doses as a laxative even in late pregnancy.

3 The 'after-taste' of potassium iodide is largely due to its elimination in the saliva. It is best mitigated by taking frequent drafts of fresh cold water or of fruit juices. A palatable method of administration is to give the syrup of hydriodic acid in cherry syrup. The aromatic syrup of eriodictyon is probably the best disguising vehicle for children's doses of alkaloidal drugs. Dosage for morphine as well as for other drugs should be proportionate to weight rather than to age. It has lately been shown (Irish, H E. Dosage of Camphorated Tincture of Opium and Morphine for Infants, *Am J Dis Child* 49 1503 [June] 1935) that the dose of morphine for children is about the same in relation to body weight as the dose for adults.

## HYPOSENSITIZATION TO TRICHOPHYTON

To the Editor—I have been treating a case of trichophytosis of the feet several months. The patient is a youth aged 20. This condition has persisted for six years. Acute exacerbations occur during the summer. At those times both feet and forearms also the hands are covered with tense small vesicles containing clear fluid. After they break open a raw beefy surface remains. The patient has been treated in numerous clinics to no permanent avail. The condition will almost clear up and then break out into renewed ferocity. I have the condition quiescent now but my hair is becoming gray over the possibility of a relapse. I used potassium permanganate and resorcinol solutions continuous wet dressings. Have you heard of desensitizing such people by trichophyton preparations? Are there vaccines or any kind of preparations to do such a thing? My subject is probably reinfesting himself and hypersensitive. If your answer is yes please tell me what you can about it and where to obtain it.

EDWARD MARTIN REPP MD Philadelphia

ANSWER—If the demonstration of fungi in the foot lesions and if the other essential criteria strongly favor the assumption that the condition is a true trichophytosis and trichophytid—dermatophytosis and dermatophytid—and if the trichophyton and/or oidium reaction is strongly positive hypsensitization with fungus vaccines may be attempted in such a persistent and therapeutically refractory case. However this immunologic therapy should not be essayed until all conceivable contact causes (shoe leather, polishes, socks dyes, plants) have been eliminated as far as possible by history and by negative patch tests. Furthermore immunotherapy should not be considered until all ordinary local therapeutic measures have been tried to no avail.

If hypsensitization procedures are resorted to satisfactory results have been reported to have been obtained by the combined use of monilia and trichophyton extracts. The Council on Pharmacy and Chemistry in a preliminary report on Trichophyton Extract (Metz Trichophyton) (*THE JOURNAL* Nov 19 1932 p 1779) stated that the clinical evidence from American dermatologists was not sufficient to justify acceptance of the product for New and Nonofficial Remedies at that time. The Council's decision on Trichophyton extracts is confirmed by Traub E F and Tolmach J A. Dermatitis trichophytosis. Its Treatment with Trichophyton. *Arch Dermat & Syph* 32 413 (Sept) 1935, abstr *THE JOURNAL*, Oct 26 1935 page 1382.

The immunization procedure must be carried out with great care and must be begun with very small doses.

The method and the chances for successful hypsensitization as well as the difficulties and some of the probable reasons for failure are adequately described in the following publications.

VanDyke L S Kingsbury Jerome Throne B and Myers C N Use of Trichophyton As Diagnostic and Therapeutic Agent in Mycotic Infections of Skin. *New York State J Med* 31 611 (May 15) 1931  
Sulzberger M B and Wise Fred Ringworm and Trichophyton. *THE JOURNAL* Nov 19 1932 p 1759  
Kerr P S Pascher Frances and Sulzberger M B Monilia and Trichophyton Extracts. *J Allergy* 5 288 (March) 1934

INDUSTRIAL HAZARDS IN MANUFACTURE OF  
FLASHLIGHT BATTERIES

To the Editor—Kindly inform me of the industrial hazards to workers employed in the manufacture of ordinary flashlight batteries. A woman aged 27 employed during the past twelve years in the manufacture of flashlight batteries complains of persistent pain of moderate intensity localized over an area 3 inches in diameter just below the right scapula. Physical examination of the chest is essentially negative. There is a slight productive cough but repeated sputum examinations have been negative for tubercle bacilli. Roentgen examination of the chest shows that the pulmonary fields are of almost equal size and illumination and that both hili are moderately infiltrated are fibrotic in appearance and contain a number of glands. The radiating bronchi and linear markings are accentuated but do not contain any studdings along their course. There is a congestion of the bronchial tree. There is no evidence of any Koch infection or pneumoconiosis. There is no loss of weight or strength or elevation of temperature. Please omit name.

MD New York

ANSWER—In dry batteries the negative pole consists of a zinc container into which is placed a mixture of carbon ammonium chloride and manganese dioxide. These chemicals may or may not be contained within paper or muslin bags. The positive pole is a carbon rod inserted into the middle of the container. These containers when properly filled are sealed over with "sealing wax," rosins or tars, and are fitted with brass binding posts. The chief substances to which significance has been attached as health hazards are manganese dioxide, lead as used in solder, mercury as used in amalgamation carbon compounds, chromium compounds benzene and related hydrocarbons, hydrochloride or other mineral acids arsenic as an occasional impurity, zinc chloride ammonium chloride, rosins and tars as used in sealing over the top of the battery. Wheat flour and potato starch occasionally lead to skin sensitization. Dry battery making long has been regarded as a dusty trade. Tuberculosis at least a score of years ago, was regarded as prevalent in this industry. Occupational cancers have been attributed to the tars and pitches used in this trade and also to impurities in the carbonaceous materials employed. Neoplasms along the respiratory tract have been mentioned but the entire matter of occupational cancer in this trade has not been well authenticated. The pulmonary disorder described is not a well known result of any known exposure in dry battery manufacture but it is recognized that the dusts of this dusty trade conceivably may have played some part in the causation of this disorder.

EFFECTS OF DIATHERMY ON LIVER CELLS IN  
PERNICIOUS ANEMIA

To the Editor—Since Crile has used diathermy for stimulation of the liver cells before and after operation for prevention of shock would it be likely that the use of the same treatment would be instrumental in effecting an increase of red blood cells by treating the liver or the other blood forming centers? In a brief way what is a suitable outline of diet in a person with pernicious anemia and diabetes together? Please omit name.

MD Kansas

ANSWER—The use of diathermy for stimulating an increase of red blood cells by treatment of the liver or over the bone marrow in order to stimulate blood formation has not been reported on. It seems rather doubtful that this method of treatment would be attended with any success, owing to the nature of the disease process in pernicious anemia. There is apparently a deficiency of the antianemic substance attended by a failure to store the material properly rather than evidence of failure of utilization after storage in the liver.

Diathermy has been used in pernicious anemia in an effort to improve the disturbances resulting from subacute combined system disease but this has not been attended by success although its effect on blood formation has not been noted. Whether or not it might be useful in stimulating blood formation in certain of the other anemias is problematic and no doubt this problem should be studied.

Regulation of the diet of a person with pernicious anemia and diabetes mellitus is to be based on the principles of regulation for the diabetic patient and without consideration of the anemia. The pernicious anemia will be controlled by an ade-

quate intake of liver or an effective substitute either orally or parenterally, whereas these substances will not in any way interfere with the usual dietary regulation for the diabetic patient. If whole liver is used, this may be calculated into the diet just as any other meat is. It has been shown that whole liver and certain extracts of it have a mild insulin-like effect in certain cases of diabetes, and the diabetic condition is generally a mild one when it occurs with pernicious anemia, possibly because of the age of the patient. It would therefore be desirable to carry out dietetic treatment either with or without the use of insulin and in accordance with any of the standardized methods.

#### LIVER DAMAGE AND HYPERGLYCEMIA

*To the Editor*—I have a patient who discovered she was diabetic about twenty years ago. The blood sugar has been as high as 750; she has been on the verge of coma several times. She had a gangrenous foot that was months in healing and the urine has not been sugar free for years. She has been on insulin and a diet but in rather a haphazard manner. About three weeks ago she had an acute illness with chills and fever. At that time the urine was found to be sugar free. The blood sugar was 250. The urine still continues to be sugar free and today the blood sugar was 125. She has chills periodically similar to malaria chills but there is no malaria in this district and the patient has no further symptoms of malaria. At first I attributed the chills to insulin shock but they have continued over a period of approximately three weeks during which she has had no insulin but they are gradually diminishing in severity and I have every reason to believe that the patient has not adhered strictly to her diet yet the blood sugar is gradually coming down to normal. The patient is 69. Ordinarily her blood pressure is 225 but it has also fallen to 150. There is no apparent loss in weight or marked change in her physical condition. I am at a loss to know what has brought about this change in her system and wish to ask if you have any such cases on record in which a person with chronic diabetes has had sugar free urine when disregarding the diet.

DANIEL I. MARKER, M.D., St. Mary's, Kan.

*ANSWER*—It is known as the result of hepatectomy experiments that the liver is the sole source of the blood sugar in the absence of food" (*Am J Physiol* 81:382 [July] 1927). It has also been shown that this is just as true for the diabetic organism as for the normal (*Arch Int Med* 31:797 [June] 1923). It follows that sufficient damage to the liver parenchyma, by decreasing the capacity of the liver to supply sugar to the blood, may cause a decrease in the diabetic manifestations and apparent improvement of the diabetes. In extreme cases even hypoglycemia may result. Such instances have been reported by Zeckwer (*Arch Int Med* 54:330 [Sept.] 1934). Improvement of diabetes has also been reported coincident with a hypophyseal disturbance (*Lancet* 1:318 [Feb. 9] 1935).

#### CARE DURING THE MENOPAUSE

*To the Editor*—I would appreciate exceedingly any suggestions you can make as to the treatment of the distressing nervous symptoms in many women at or near the menopause. I am particularly interested in this just now because my wife who is 42 years of age, is having that experience. The amount of flow is getting less all the time. She has never had children although she has had two or three miscarriages. She has a mucous colitis but this does not seem to be very bad. She has splitting headaches and at times a feeling as if something were grinding in her head. When I say splitting headaches I mean just that kind. It seems as if the head were going to burst open. The headaches have to a considerable extent improved under four to five day injections of corpus luteum extract but this does not seem to affect the nervous element. She has a kidney infection and when it flares up it increases the whole train of symptoms.

M.D., Arizona

*ANSWER*—A careful and thorough physical examination should be made to try to determine the cause of the severe headaches. If no etiologic factor can be found, it may be assumed that the headaches are linked up with the menopause. However, 42 is an early age for the change of life. Many women can be relieved of at least part of the distressing symptoms that occur during the menopause by the administration of estrogenic substance. The chief American preparations of this substance are theelin (Parke, Davis & Co.) and aminotin (Squibb). It is best to give about 400 or 500 rat units of these substances hypodermically three or four times a week. To receive a similar effect, the amount taken by mouth must be about five times the dose administered hypodermically. The amount of estrogenic substance given to a patient should depend on the amount of relief obtained. The more the disturbing symptoms are relieved, the smaller and more infrequent may be the doses given. Furthermore regardless of how much estrogenic substance is given to the patient a mild sedative should be prescribed for daily use, because it is most helpful. Recently reports have appeared claiming that severe headaches in many instances may be relieved by the hypodermic administration of ergotamine tartrate and by the oral use of chondroitin sulfate.

#### SAFETY PERIOD FOR CONTRACEPTION

*To the Editor*—May I enlist your aid in a case of a married woman aged 26 desiring to use the safe period of contraception? For the past ten months her periods have been as follows: January 20, February 7, March 21, April 17, May 16, June 16, July 14, August 19, September 14, and October 16. Every period of the last ten months has lasted but 11 days. I have attempted to determine the safe and fertile periods according to the article of Latz and Reiner in the Oct. 19, 1935 issue of *THE JOURNAL* but I am somewhat confused. Their article states that the fertile period extends from the twelfth to the nineteenth day before the expected menstruation (the expected first day of menstruation being calculated from the longest cycle in the last eight months) plus the days of variation between the longest and the shortest cycle in the last eight months added to the beginning of the fertile period. Now the patient about whom I seek advice has a short cycle of twenty-seven days and a long cycle of thirty-six days which should make a fertile period of seventeen days—eight days natural fertility plus nine days variation—yet in chart 3, page 1243, a woman with a twenty-seven to thirty-six day cycle has a fertile period of but fourteen days. Would you kindly set me straight in this matter of safe periods and give the fertile and safe periods of the patient to whom I have referred? Please omit name.

M.D. Pennsylvania

*ANSWER*—In cycles of twenty-seven to thirty-six days, the period of fertility lasting seventeen days is correct as the corresponding computed it. By referring to chart 1 on page 1241 of *THE JOURNAL* of October 19, it will be seen that the computation of seventeen days of fertility conforms to the conception period for twenty-seven to thirty-six day cycles, as expressed in this chart. Chart 3 is a compilation of intercourses occurring outside the fertile period, which did not result in pregnancy, and was not intended to express the duration of the fertile period.

The apparent discrepancy arises from the fact that women are advised as an additional precautionary measure to abstain two additional days after the fertile period and one extra day before the period, as shown in chart 1. Chart 3 shows the intercourses had in reference to the fertile period as outlined by Knaus.

#### VASCULAR CHANCES IN LEGS

*To the Editor*—A man aged 76 active and in good health, has never been seriously ill except for pneumonia when in his twenties. At present he complains of a feeling like needles in his right foot all of the time but of varying intensity. This has been present for two years and is improved by exercise and by raising the extremity above the level of his body when in bed. If the foot gets in a dependent position the needle pain will wake him up sometimes with cramps in the calf. The other foot is only slightly affected. Heat seems to benefit the condition temporarily. Physical examination shows a good pulse in the arteries of the ankle and knee. No sclerosis is present. The reflexes are normal. The foot is cool and there are no red spots or abnormal colorations present. Sensation is normal in the calf. The condition is worse in cold weather. Please omit name.

M.D., Wisconsin

*ANSWER*—The patient apparently has a vascular disturbance in the lower extremity. The condition as described is not compatible with an involvement of the peripheral nerves. It is quite likely that the condition is one of senile changes in the deeper vessels of the lower extremities rather than one of a functional vascular disturbance. It is unlikely that any treatment would be of much help except maintaining the limbs in an elevated posture.

Contrasting hot and cold baths may be tried.

#### HEMOPHILIA IN WOMEN

*To the Editor*—I should like to get the latest information on hemophilia in women. I have in mind the case of a married woman whose mother bore four children, two daughters and two sons. All four lived and all have children. One son the woman's brother definitely has hemophilia. He has three children. The two grandmothers were sisters. So far as she can remember the woman knows of only one uncle who has hemophilia. She wants to have children. What is the best information in the literature now available that would serve as a basis for advising her? She herself does not believe that her mother had hemophilia but is eager to know what chance there would be of her transmitting it to her own children.

GEORGE GAAL, M.D. Chicago

*ANSWER*—The patient's mother did not have hemophilia, because this disease is restricted to the male sex. The few cases in which female bleeders have been reported as hemophiliacs have not presented enough evidence to justify the diagnosis. On the other hand, the disease is transmitted by women but only to the male members of the family. Hemophilia occurs in the male offspring of families through many generations, but not all the male members of any one generation are necessarily affected. Not infrequently the disease appears early in life, at birth when the umbilical cord is cut. Many cases of hemophilia are not detected until profuse hemorrhage occurs from a mild injury. The bleeding may occur spontaneously.

Since hemophilia is confined to the male sex but is transmitted by the females, this patient may be told that her sons will most likely have hemophilia but her daughters will definitely not have the disease. On the other hand, her daughters will transmit the disease to their sons, who will most likely have evidences of the disease.

## URTICARIA

*To the Editor*—I have a patient who has had urticaria daily for one year. This occasionally assumes the characteristics of angioneurotic edema. The child has been on elimination diets and cutaneous skin tests have failed to reveal any allergic reaction. In addition she has been given alkalis in sufficient amounts to make the urine alkaline to litmus and subsequently was given 40 grains (2.6 Gm) of calcium chloride daily. None of these measures have improved her condition. Can you suggest additional examinations and therapy that might prove beneficial?

C A STEWART M D Minneapolis

*ANSWER*—There are several unmentioned features in the query which may prove helpful in determining the cause of the urticaria. Since intestinal parasites, particularly roundworms and tapeworms, sometimes cause urticaria, it would be advisable to make a careful study of the feces. A thorough search for focal infection should be made, although this source of urticaria is not common in children. Is there any gastro-intestinal disturbance such as constipation? The inquirer mentions the use of alkalis. Insufficient acidity of the gastric juice is a greater possibility as a cause of digestive disturbances and resultant urticaria. It may be well to try the therapeutic effect of dilute hydrochloric acid or even other digestants, such as pancreatic extract.

A possible drug allergy should be considered. It may be well also to try intracutaneous tests to various allergens in addition to the cutaneous tests mentioned. The hypodermic use of parathyroid extract (from 4 to 10 units) every day or two days for several doses has been found of value in some instances. Occasionally, the use of from 0.3 to 0.5 Gm of peptone half an hour before each meal has been beneficial. It should not be forgotten that in many cases of urticaria there is a marked nervous element to be considered.

## INFECTION WITH GONORRHEA

*To the Editor*—1 Is there such a thing as a gonococcus carrier in the male or female genito-urinary tract? 2 Can the first sign of a venereal (gonococcal) infection in the female present itself with a Bartholin gland abscess when a careful history brings forth repeated denials of any vaginal discharge whatever? 3 What is the shortest and what is the longest possible duration of the formation of a Bartholin gland abscess (gonorrheal) following a gonorrheal infection? 4 Is it possible for a man cohabiting with a woman regularly for several years to remain free from a gonorrheal infection when the female has a quiescent gonococcal infection in the Bartholin gland for a period of seven or eight years? (Here there is no clinical evidence of a gonorrheal infection either in the Bartholin gland or in the female genitalia.) 5 Is it possible that no evidence may be present (clinical or laboratory) of gonorrheal infection during a laparotomy and following a curettage done at the same stage when there is present (not determined clinically) a quiescent gonococcal infection of the Bartholin gland?

JACOB STERN M D Chicago

*ANSWER*—1 Yes, but usually associated with some symptoms.  
2 This is possible.  
3 This may vary from a number of days to many weeks.  
4 This does not seem possible unless one believes in immunity.  
5 Yes.

## DRUG EFFECTS ON CORONARY CIRCULATION

*To the Editor*—I am using a preparation containing theobromine 5 grains (0.3 Gm) and phenobarbital one fourth grain (0.016 Gm) for certain types of heart cases and with some apparent success. I usually have them given at the rate of one tablet after each of the three meals in a day. Do you think the benefits that seem to result come from the phenobarbital alone or is theobromine 5 grains three times a day an adequate dose for producing any vasodilating effects? Please omit name.

M D New York

*ANSWER*—The effect of theobromine on the coronary circulation is relatively feeble as compared with that of theophylline though it has a similar tendency. The dose of phenobarbital is relatively small to have much vasodilator effect. The combination is, however, a synergistic one and it may have some therapeutic value, as is suggested by the apparent success reported. Should it fail in cases in which this treatment seems indicated, doubling the dose of the combination would be permissible. Indeed, the dose of phenobarbital might be increased up to the point of producing drowsiness. If gastric distress or other untoward phenomena are produced by the theobromine theophylline—which is active in smaller dosage—might be tried instead.

## MECHANISM OF EXOPHTHALMOS

*To the Editor*—Please explain the mechanism of exophthalmos in exophthalmic goiter.

JOSEPH DEUTSCH M D Cleveland

*ANSWER*—Exophthalmos in exophthalmic goiter is probably due to a nervous mechanism, possibly located in the hypothalamus. The excess thyroid hormone present in the disease may activate this mechanism directly, or through its effect on the sympathetic nervous system, or through its effect on the pituitary. It has been shown that (1) thyrotropic pituitary hormone or cyanide will produce exophthalmos in thyroidectomized animals, that is procedures which cannot raise the thyroxine blood level but which probably have a pituitary and nerve stimulating action, (2) thyrotropic hormone in excess in normal animals may lead to exophthalmos in animals, and (3) thyroid feeding to cretin rabbits will produce exophthalmos, that is, that excess thyroid hormone in a pathologic animal will produce exophthalmos. The nervous impulses produce protrusion of the eye by active engorgement of the blood vessels of the orbit and by stimulating the retrobulbar musculature, and possibly by effects on the palpebral muscles.

## READS FORMULA FOR COMPUTING BASAL METABOLISM

*To the Editor*—On page 1390 of THE JOURNAL Oct 26 1935 there is an abstract of an article on Read's formula for computation of the basal metabolic rate. I wonder if it would be possible to explain this.

M D Connecticut

*ANSWER*—Basal metabolic rate = 0.75 (pulse rate plus 0.74 pulse pressure) — 72. The arithmetic can best be illustrated by the following example, in which the pulse rate is 80 per minute, the systolic blood pressure 120 mm of mercury and the diastolic 80 mm, which gives a pulse pressure of 120 — 80 = 40. In the following calculation unnecessary decimal places are dropped and both 0.75 and 0.74 are considered equal to  $\frac{3}{4}$ .

$$\begin{aligned} BMR &= 0.75 (80 + [0.74 \times 40]) - 72 \\ &= 0.75 (80 + 30) - 72 \\ &= (0.75 \times 110) - 72 \\ &= 83 - 72 \\ &= + 11 \end{aligned}$$

If the inquirer is going to use any of the Read formulas he will probably wish to use the latest modification. The arithmetic for these has been worked out in a convenient monogram by Conroe.

## FISTULA IN ANO

*To the Editor*—Is there any new treatment of fistula in ano that is worth while? Is there any real nonsurgical therapy? Is there any injection therapy of value such as has been used for hemorrhoids varices and recently for hernias? Please omit name.

M D, Iowa

*ANSWER*—Success in the treatment of fistula-in-ano depends on one's conception of its origin. The ischioanal abscess, which is usually considered the beginning of the disease, is in reality the third stage in the development of the fistula. The infection begins in the anal crypts, extends through, external to or internal to, the anal sphincters, out into the ischioanal space, where the abscess develops. Any treatment from which success may be expected must be aimed at the source of the infection.

There is no new treatment. Surgical methods are usually the only ones that can produce a cure. Claims have been made for injection of the sinuses with various medicaments, but none can be said to have proved value.

## MEASURING VISUAL ACUITY

*To the Editor*—I am anxious to be informed of the method of measuring visual acuity and expressing it percentally. Has a method been worked out whereby advice can be given to insurance companies relative to percentage of loss of vision? I have the cards which bear the recommendation of the American Medical Association. Is there anything other than these to guide me? WILLIAM J. HERTZ M D Allentown Pa.

*ANSWER*—This question is discussed in detail in the report of the Committee on Compensation for Eye Injuries that was accepted by the House of Delegates in 1925 and published at length in THE JOURNAL, July 11, 1925 p 113. The visual acuity charts published by the American Medical Association are based on that report, which has not been changed since the original publication. The questioner is advised to consult that report and if there are further questions, after study any of the members of the committee will be glad to go into detail with him on questionable points.



POSTOPERATIVE ROENTGEN THERAPY IN  
BREAST CARCINOMA

To the Editor—A woman aged 35 had a radical breast resection for an adenocarcinoma of the breast. She is now ready for postoperative roentgen therapy. It was suggested by a roentgenologist that an artificial menopause be induced because of recent observations that sterilization of the ovaries will prevent metastases and even sometimes prolong the lives of patients who have metastases. Is there any basis for this treatment? Would the artificial menopause created be difficult to hold, and how would it be treated? Please omit name.

M D New York

ANSWER—It is true that breast tissue, both normal and abnormal, is subject to stimulation by the ovarian secretions. Theoretically, cessation of ovarian activity should impede the growth of breast tumors, proof that this occurs requires further clinical evidence.

At the present time most of the good that can be obtained from roentgen therapy is by irradiation of the local tissues, including the axilla, as well as intensive high voltage therapy of the chest.

The artificial menopause, once established, is permanent. Symptoms of the menopause may be controlled by estrogenic substances.

## EFFECTS OF ZINC ON TISSUES

To the Editor—At a recent meeting of a medical association a physician friend of mine reported having treated a case of pruritus ani and vulvae by first applying a liberal application of strong solution of iodine (just once). He then gave the patient a prescription for calamine lotion to be applied locally three or four times a day. The result was enormous edema of the tissues followed by a complete desquamation with a copious watery discharge from the tissues three days later followed by some sloughing of the subcutaneous tissue. No other treatment had been used before or after this treatment. Is this a result of the chemical reaction between the iodine and the zinc in the calamine lotion?

JOHN L. MACE, M.D. Hastings, Neb

ANSWER—In concentrated form, the halides of zinc, including the zinc iodide, are caustic, and the result reported might well be due to the chemical reaction between the iodine and the zinc.

## MUCOUS COLITIS

To the Editor—A woman aged 40, with an ovarian neurosis for the past ten years has had mucous colitis and at present has spastic constipation and mucous colitis. All sources of infection have been eliminated all types of sedatives, enemas and colon flushes have been tried with only a few days relief. Autogenous vaccines have been tried with no result. There are no ulcerations and no parasites can be found. At present I am using bromides and oil enemas. Do you know of any new treatment?

CHARLES T. ATKINSON, M.D. Middletown, Ohio

ANSWER—Since there is no local cause for mucous colitis there is no specific local therapy. An attempt should be made to determine a possible general cause, such as a disturbance in the endocrine system, especially the thyroid. Hypothyroidism may be the cause of an excessive secretion of mucus in the large intestine. Hence at least one basal metabolism reading should be taken. The patient should be placed on a nonresidue diet and should also receive large doses of atropine or belladonna. The latter will also help the spastic constipation. Since in most cases the nervous system is involved, mild sedatives should be prescribed.

## STERNAL NOTCH

To the Editor—Will you please tell me what you understand by the sternal notch anatomically speaking? Is this expression in current use?

HAROLD I. KORN, M.D. New York

ANSWER—The term "sternal notch" is commonly used for the depression superior to the sternum and between the sternal heads of the sternocleidomastoid muscles. The BNA term is 'incisura jugularis' or jugular notch, probably because of the anastomosis between the anterior jugular veins in this region. The best descriptive term would be "suprasternal notch."

## FIBROID OF UTERUS IN PREGNANCY

To the Editor—A woman aged 38 pregnant has a fibroid on the anterior wall of the uterus on the lower segment just above the cervix and easily palpated in the anterior fornix. She is three months pregnant. The size of the fibroid has appeared to increase about 1 cm. in the last month. Being on the lower uterine segment it may interfere with delivery. Should anything be done now or at term? Kindly omit name.

M D New York

ANSWER—Intervention at this time is contraindicated. The patient will probably have a normal labor, despite the location of the tumor. The family should be given to understand that such tumors sometimes obstruct the birth canal and that cesarean section is occasionally necessary, as a rule, the labor is uneventful.

## Medical Examinations and Licensure

## COMING EXAMINATIONS

- STATE AND TERRITORIAL DOAROS  
 ARKANSAS *Medical (Regular)* Little Rock May 17 13 Sec. S. Medical Board of the Arkansas Medical Society Dr. A. S. Buckner  
 Prescott *Medical (Eclectic)* Little Rock May 12 Sec. Dr. Chas. H. Young 207 1/2 Main St. Little Rock  
 CALIFORNIA *Reciprocity* San Francisco May 13 Sec. Dr. Chas. B. Pinkham 420 State Office Bldg. Sacramento  
 CONNECTICUT *Basic Science* New Haven June 13 *Prerequisite license examination* Address State Board of Healing Arts 1895 1/2 Station New Haven  
 FLORIDA Jacksonville June 15 16 Sec. Dr. William M. Rowlett P. O. Box 786 Tampa  
 GEORGIA Atlanta, June 10 11 Joint Sec. State Examining Board Mr. R. C. Coleman 111 State Capitol Atlanta  
 INDIANA Indianapolis June 16 18 Sec. Board of Medical Registration and Examination Dr. William R. Davidson Room 5 State House Annex Indianapolis  
 IOWA Iowa City June 24 Dir. Division of Licensure and Registration Mr. H. W. Greife Capitol Bldg. Des Moines  
 KANSAS Topeka June 16 17 Sec. Board of Medical Registration and Examination Dr. C. H. Ewing 609 Broadway Larned  
 KENTUCKY Louisville June 10 12 Sec. State Board of Health Dr. A. T. McCormack 532 W. Main St. Louisville  
 MARYLAND *Medical (Regular)* Baltimore June 16 Sec. Dr. John T. O'Mara 1215 Cathedral St., Baltimore *Medical (Homoeopathic)* Baltimore June 9 10 Sec. Dr. John A. Evans 612 W. 40th St. Baltimore  
 MISSOURI St. Louis June 4 6 State Health Commissioner Dr. E. T. McLaughlin State Capitol Bldg. Jefferson City  
 NEBRASKA *Basic Science* Omaha May 5 6 *Medical* Omaha June 9 10 Dir. Bureau of Examining Boards Mrs. Clark Perkins State House Lincoln  
 NEW JERSEY Trenton, June 16 17 Sec., Dr. Arthur W. Behn 28 W. State St. Trenton  
 NORTH CAROLINA Raleigh June 15 Sec., Dr. Ben J. Lawrence 503 Professional Bldg. Raleigh  
 OHIO Columbus June 16 19 Sec. State Medical Board Dr. H. W. Platter 21 W. Broad St., Columbus  
 OKLAHOMA Oklahoma City June 10 11 Sec. Dr. James D. Odeon Jr. Frederick  
 OREGON Portland June 16 18 Sec. Dr. Joseph F. Wood 419 Selling Bldg. Portland  
 VIRGINIA Richmond June 18 20 Sec. Dr. J. W. Preston 294 Franklin Rd. Roanoke  
 WISCONSIN *Basic Science* Milwaukee June 6 Sec. Prof. Robert N. Bauer 3414 W. Wisconsin Ave. Milwaukee

## NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* May 6 9 June 22 24 and Sept 14 16 Ex. Sec. Mr. Everett S. Elwood 225 S. 15th St., Philadelphia

## SPECIAL BOARDS

- AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral examination for Group A and B applicants will be held in Kansas City Mo. May 11 12 Sec. Dr. C. Guy Lane 416 Marlboro St. Boston*  
 AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Oral clinical and pathological examination of all candidates will be held in Kansas City Mo. May 11 12 Sec. Dr. Paul Titus 1015 Highland Bldg. Pittsburgh (6)*  
 AMERICAN BOARD OF OPHTHALMOLOGY *Kansas City Mo. May 11 and New York Sept. 26 All applications and case reports must be filed sixty days before date of examination* Asst. Sec. Dr. Thomas D. Allen 122 S. Michigan Ave. Chicago  
 AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Kansas City Mo. May 12 Sec. Dr. Fremont A. Chandler 180 N. Michigan Ave. Chicago*  
 AMERICAN BOARD OF OTOLARYNGOLOGY *Kansas City Mo. May 9 Sec. Dr. W. P. Wherry 1500 Medical Arts Bldg. Omaha*  
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 AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY *St. Louis Mo. May 8 9 Sec. Dr. Walter Freeman 1028 Connecticut Ave. Washington D. C.*  
 AMERICAN BOARD OF RADIOLOGY *Kansas City Mo. May 8 10 Sec. Dr. B. R. Kirklind Mayo Clinic Rochester Minn.*  
 AMERICAN BOARD OF UROLOGY *Kansas City Mo. May 8 10 and Boston May 22 24 Sec. Dr. Gilbert J. Thomas 1009 Nicollet Ave. Minneapolis*

## District of Columbia January Report

Dr. George C. Ruhland, secretary Commission on Licensure, reports the written examination held in Washington, Jan 13 14, 1936. The examination included 60 questions. An average of 75 per cent was required to pass. Nine candidates were examined, all of whom passed. Two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine (1933) 81 (1934) 86 5	(1916)		87.1
Georgetown University School of Medicine (1933) 82 4 (1934) 84 4 5 4	(1937)		83.8
Howard University College of Medicine (1934) 165 (1930)			86.5
University of Cincinnati College of Medicine			
School	LICENSED BY ENDORSEMENT	Year Grad	Per Cent
College of Medical Evangelists	(1933) 1 B M Ex.		
Rush Medical College	(1935) 1 B M Ex.		



**Ohio Reciprocity and Endorsement Report**

Dr H M Platter, secretary, Ohio State Medical Board, reports 15 physicians licensed by reciprocity and 1 physician licensed by endorsement on Jan 7, 1936. The following schools were represented:

LICENSED BY RECIPROCITY		Year	Reciprocity
School		Grad	with
University of Arkansas School of Medicine		(1932)	Arkansas
Loyola University School of Medicine		(1935)	Illinois
Northwestern University Medical School		(1934)	Illinois
Rush Medical College		(1935)	Illinois
School of Medicine of the Division of the Biological Sciences		(1932)	Illinois
University of Illinois College of Medicine		(1935)	Illinois
Indiana University School of Medicine		(1934)	Indiana
State University of Iowa College of Medicine		(1934)	Iowa
University of Louisville Medical Department		(1917)	Kentucky
University of Louisville School of Medicine		(1933)	W Virginia
St Louis University School of Medicine		(1932)	Missouri
(1934) Michigan			
University of Buffalo School of Medicine		(1933)	New York
Jefferson Medical College of Philadelphia	(1932)	(1934)	Penna
LICENSED BY ENDORSEMENT		Year	Endor cement
School		Grad	of
University of Pennsylvania School of Medicine		(1933)	N B M Ex

**Book Notices**

**Glandular Physiology and Therapy** A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association [Reprinted from the Journal of the American Medical Association] Fabrikoid Price \$2.50 Pp 528 Chicago American Medical Association 1935

The enormous increase in the number of scientific contributions to the knowledge of endocrinology, within recent years has made it difficult for even a worker in that field to keep pace with advance in the various phases of the subject. When one considers, moreover, that the methods of research have been constantly changing, as they have been improved and refined, and that much of the newer information has therefore been rather tentative and subject to constant reinterpretation, the real need for a periodic critical survey of the whole subject is self evident. The symposium presented in this well made volume includes the series of articles that recently appeared in THE JOURNAL under the same generic title. It constitutes a well documented review and appraisal of the present status of endocrine knowledge by twenty-four acknowledged authorities in the field. The value and importance of such a book at the present time cannot be overestimated. Since the impetus for the present advance in endocrinology has come from the physiologic laboratory rather than from the clinic it is to be expected that the articles dealing with the physiology of the endocrines should contain more real substance than the papers of a clinical nature. But for the very reason that the present status of endocrine therapy is frankly disappointing this volume is important from a clinical standpoint in that it should tend to moderate the overenthusiastic application of our present theories and thus decrease the inevitable subsequent negativistic reaction. In this regard the inclusion of a chapter on glandular products which are now commercially available to the practicing physician is a feature of the highest practical importance. Nevertheless, the reader cannot fail to be impressed with the great clinical potentialities of the subject and with the imminence of its practical application. Perhaps the most useful feature of this book is the complete subject index that is appended. The index renders the wealth of information and criticism available for ready reference. This volume should be in demand by every one interested in either the physiology or the therapy of the endocrines. In view of the rapidity of the advance in knowledge, it is to be hoped that this volume will be revised or supplemented at appropriate intervals.

**Digitalis** Von Dr med H Weese Priv Doz der Pharmakologie an der Universität Köln Monographien zur Pharmakologie und experimentellen Therapie Herausgegeben von Prof Dr Felix Haßner und Prof Dr Werner Schulemann Paper Price 26 marks Pp 296 with 73 illustrations Leipzig Georg Thieme 1936

This monograph embraces an analysis of the better pharmacologic literature of the digitalis bodies. It will be useful to the medical student, the internist, the specialist in cardiac diseases and the pharmacologist but this statement does not apply to the last chapter, for reasons which will appear. The author states that many internists have little knowledge of the phar-

macology of digitalis and that many pharmacologists know little of the important problems of digitalis therapy. This criticism is just. Many find it impossible to evaluate the extensive literature relating to these closely related fields, and Weese has rendered a service in presenting his analysis with such clarity that the internist may use the facts in the therapeutic treatment of cardiac disease.

A brief history of digitalis and strophanthus is presented, and the author states that after Withering had laid the foundations for the rational use of digitalis it was used without discernment in so many conditions that many years passed before its rational use was reestablished. The various methods employed for the standardization of digitalis are discussed at length. This is of interest to laboratory workers, but the details of standardization are of little interest to the internist because the pharmacopeial requirements insure a dependable supply of the drug. This is true also of the chemical means of identifying digitalis principles—not of the chemical constitution. The discussion of the older chemistry of the active and inactive principles of digitalis and those of a host of minor drugs will aid in understanding why so many preparations have been introduced as substitutes for digitalis during the last thirty years.

A chapter is devoted to the newer chemistry of the digitalis glucosides. Many have thought that they have isolated the essential principle, but while there has been great progress in this field it is widely believed that digitalis itself will continue for some time to hold first place in cardiac therapy, though this is not the view of the author. The chapter on the biochemistry of the digitalis glucosides, including those of related drugs, is concerned with many important questions, including absorption, behavior in the body, and elimination. Weese maintains that the saponin of the leaf irritates the stomach, though he does not state that it causes vomiting, which is of peripheral origin. He says that the seat of the emetic action remains to be determined, also that the cumulative action of therapeutic doses of digitoxin is injurious to the heart, in which it differs from that of strophanthin. It is true that excessive doses of digitoxin are injurious to the heart in animal experiments and that massive doses of saponin irritate the stomach, but it is doubtful whether such effects attend the therapeutic use of digitalis in man. The author also implies that pills of digitalis are contraindicated. It is possible to make a useless pill of digitalis, but it is well known that many cardiologists employ tablets of digitalis almost to the exclusion of other forms of digitalis.

Closely related to the questions of dosage and cumulation are those of absorption, distribution in the body, and elimination, but pharmacology has added little to our knowledge of the second and third of these.

The most important chapter is entitled Special Pharmacology. It includes more than one third of the monograph with about 450 references to the literature. The principal divisions of this chapter are on the action of digitalis on the isolated heart, the action on the vessels, the vagus action, the action on the closed circulation effects on metabolism of the normal and insufficient heart, and the action on the central nervous system and other organs exclusive of the heart. There are more than 100 subdivisions of this chapter. The chapter is concerned with technical procedures and it is not easy to review it satisfactorily in a brief space.

The last chapter deals with therapy and dosage. The author lays down certain principles and conclusions with which few will take issue and he also presents certain other conclusions which are justified but which are contrary to opinions that are held stubbornly by many without evidence. He believes that digitalis is useless in circulatory collapse of vasomotor origin and not associated with injury to the heart. This must be conceded by one who accepts the facts presented in the chapter on special pharmacology. It is hoped that this will discourage the routine use of digitalis in surgical operations, and in pneumonia and other acute infections in the absence of cardiac injury.

With much of the remainder of this chapter it is easy to disagree. Weese is a pharmacologist and the value of the monograph is due to his presentation of the pharmacology of digitalis. This part of the chapter is weak because the phar-

eologist attempts to direct the cardiologist and it is weak even though Weese leans heavily on Fraenkel (or because he does), since Fraenkel's views with reference to the routine intravenous use of strophanthin cannot be accepted. It may be trite to state that the internist must learn to utilize the facts presented by pharmacology, but the frequent disregard of that fact justifies its repetition.

The seventh chapter is merely a table of toxic actions of various drugs of this group; all other chapters are followed separately by references to the literature. The titles of papers are given in German. The total number of references, including repetitions in different chapters, exceeds 1200. There are many small tables, the illustrations include reproductions of photographs of crystalline principles, tracings and diagrams. The printing is excellent. No important typographic error was discovered.

**Röntgenology. The Borderlands of the Normal and Early Pathological in the Skiagram.** By Alban Kohler, Prof. Dr. med. Wiesbaden. Second English edition revised by the author. Translated and edited by Arthur Turnbull, M.A., B.Sc., M.B., Cloth. Price \$14. Pp. 681 with 401 illustrations. Baltimore: William Wood & Company, 1935.

The early utilization of the x-rays for diagnosis had its unfortunate as well as fortunate effects. The introduction of the physician to a new anatomy, to the visualization of structures often hardly familiar to the anatomist produced numerous errors in diagnosis. This book was first written in German in 1910 to elucidate this problem of distinction between the normal and the abnormal in borderline cases.

To any one who has visited Professor Kohler in his modest little office with its meager equipment this volume is a source of amazement and admiration. While the author has utilized to the full his keen observations, most of the tremendous mass of information which the book contains is derived from an exhaustive study of the anatomic and roentgenologic literature. There are liberal, often verbatim, citations from material on the subject of normal anatomy, anatomic variations, anomalies, borderline conditions, and abnormalities simulating the normal, as seen in the roentgenogram.

It would be unreasonable to expect that all of the innumerable normal variations that may be encountered on roentgenologic study would be recorded in one volume. Nevertheless, so many are found here in accessible form that the book has become indispensable to the practicing roentgenologist.

The first English translation by Turnbull was published in 1931. The present edition has been enlarged chiefly by the addition of a large number of reproductions of roentgenograms, most of the illustrations are instructive line drawings. There is some elaboration of the text particularly as to the gallbladder and the gastro-intestinal tract. The literature has been brought down to 1934 with many English and American references not cited heretofore.

It is unfortunate that the author has deliberately omitted consideration of the newer methods in roentgen diagnosis. The new edition contains a small section on cholecystography, but, aside from the gastro-intestinal tract, practically no discussion of the use of contrast mediums elsewhere. Even such standard procedures as bronchography and urography, both retrograde and intravenous are ignored. The material on the bones and joints is far superior to that on the internal organs.

Certain minor criticisms should be noted. The bibliography is inconsistent in form and many references are difficult to follow. Proof-reading errors are unusually common, the most irritating being the use of wrong figure numbers in the text. The terminology, owing partly to awkwardness of translation and partly to the use of old anatomic and clinical nomenclature, is occasionally confusing. Numerous statements might well be questioned, e.g., that satisfactory roentgenograms of the chest cannot be made with intensifying screens, in most instances an attempt is made to quote several opinions on moot points.

The detailed description of the two diseases bearing the author's name—those of the navicular of the foot and of the second metatarsophalangeal joint—is of unusual interest. The discussion of the merits of orthodiagraphy and teleroentgenography is illuminating.

This edition is not vitally different from the previous English edition. Either is invaluable to any physician attempting to use x-rays for diagnosis.

**Maladies des femmes enceintes I Affections du tube digestif.** Par Henri Vignes, professeur agrégé à la Faculté de médecine de Paris. Avec la collaboration de G. Lauret et P. Olivier Pallud. Papier. Price 40 francs. Pp. 317 with 34 illustrations. Paris: Masson & Cie, 1935.

**Maladies des femmes enceintes II Affections du foie, du pancréas, maladies de la nutrition, parois abdominales, péritonée.** Par Henri Vignes, professeur agrégé à la Faculté de médecine de Paris. Avec la collaboration de G. Lauret, Jean Olivier et P. Olivier Pallud. Papier. Price 25 francs. Pp. 205. Paris: Masson & Cie, 1935.

In these two volumes the author has amassed an enormous amount of information concerning illnesses that may occur during pregnancy. The first volume is devoted entirely to disorders of the intestinal tract. The twenty chapters of this volume include illnesses involving each anatomic division of the gastro-intestinal tract from the mouth to the rectum. Five chapters deal with vomiting. In the second volume the author takes up diseases of the liver, gallbladder and pancreas, and also disturbances in nutrition, abnormalities of the abdominal wall and disorders of the peritoneum. The information presented in these two volumes is encyclopedic in character. With his customary thoroughness and diligence Vignes has reviewed not only the French literature but also the American, British and German references for his facts. For each illness discussed, extensive sections on therapy are added. These books are well printed and written in an easily readable style. They should be in the library of every obstetrician and internist, for they are invaluable sources of reference.

**Formulary of the University Hospital, University of Michigan, 1934.** By Harvey A. K. Whitney, Chief Pharmacist, Ann Arbor, Michigan. Cloth. Price \$2.50. Loose Leaf. Ann Arbor: Edwards Brothers Inc. [n. d.]

This formulary is a loose-leaf booklet containing the U. S. P., N. F., N. N. R. and University of Michigan (designated U. M.) preparations in use at this hospital. The author, chief pharmacist of the hospital, recommends reference to New and Nonofficial Remedies and the Epitome of the United States Pharmacopoeia and National Formulary for evaluation of various items. The pages are not numbered but the preparations are indexed by group and stem number and entered in numerical order (Vioform is indexed 80.70, 80 refers to "Anti Amebiasis" 70 is the item number). The metric system is used exclusively and the preparations are given in prescription form with a statement of uses and directions for administration. In common with other similar formularies, it would seem to lead if not to the use of numbers at least to mechanical copying by the house officers. It contains directions for drafting a prescription and a table of equivalents. The usefulness of this book would appear to be limited to the hospital for which it was specifically designed.

**The Probability of Commitment for a Mental Disorder of Any Kind Based on the Individual's Family History.** By Serge Androp, M.D. Eugenics Research Association Monograph Series Number 5. Price Winning Research on the Genetics of Mental Disorders. Paper. Price 50 cents. Pp. 79 with 56 illustrations. Cold Spring Harbor, Long Island, N. Y. 1935.

This little volume is made up of some seventy-nine pages, of which the last fifty-seven consist of genetic charts showing families in which there have been insanity. If this piece of work is "the winning research on the genetics of mental disorders" of the Eugenics Record Office, one must be impressed by the fact that the others must have been extremely unsatisfactory. Androp gives no real statistical treatment of his material, most of the results being expressed in percentage evaluations. Criminality, epilepsy, feeble-mindedness and insanity are evaluated on an equal level in spite of the fact that it is known that criminality in a rural community represents entirely different mental traits than that in an urban community and also that the epilepsies cannot all be classified from the same standpoint. Nevertheless, certain factual material is disclosed. For instance, when both parents were mentally disordered, 69 per cent of the children were likewise mentally disordered. In the case of one parent being mentally disordered, 46 per cent of the children were mentally disordered and so on through thirteen different family relationships. Several interesting conclusions are drawn, for example, that it is unimportant to determine whether mental disorder was mendelian in behavior that mental disorders are inherited even if the mode of inher-

tance cannot be demonstrated. All in all, one is led to believe that a good deal of time is consumed in carrying out this work and in obtaining pedigrees but that the results are scarcely worth any sort of prize and only add force to general conclusions which have previously been rather universally held.

**The Cerebrospinal Fluid and Its Relation to the Blood. A Physiological and Clinical Study.** By Solomon Katzenelbogen M.D. Associate in Psychiatry in charge of the Laboratory of Internal Medicine the Henry Phipps Psychiatric Clinic the Johns Hopkins Medical School. Cloth Price \$5. Pp 468. Baltimore: Johns Hopkins Press. London: Oxford University Press. 1935.

This book limits itself to one phase of the study of cerebrospinal fluid, namely, the relation of cerebrospinal fluid to the blood. In addition to a discussion of the comparative chemical composition of cerebrospinal fluid and of blood, which constitutes the largest part of the book, the author also takes up the questions of the origin and formation of cerebrospinal fluid and the barrier between the blood and cerebrospinal fluid. At the end of each topic he gives a summary of the facts reviewed. This summary makes it easier for the reader to get a bird's eye view of the enormous amount of literature on cerebrospinal fluid. As a whole, the literature has been brought down to date. Here and there, however, the literature of the last three or four years has not been included. This is particularly true in connection with the latest work on dextrose. Although the book contains a discussion on examination of barrier function and on arsenotherapy and bismuth therapy that have some clinical application, it is not intended as a textbook for the clinician, as it does not contain any clinical methods of examination of cerebrospinal fluid or any information on cerebrospinal fluid changes in various diseases. The author says "Evidently this book is not specifically a technical laboratory guide, nor is it a textbook in the usual sense of the word, if a textbook is supposed to offer definite outlines of knowledge." The book will, however, be found very useful as a reference work to those who are interested in the relation of the blood to the cerebrospinal fluid.

**Convalescent Care in Great Britain.** By Elizabeth Creene Gardiner. Assistant Professor and Supervisor of Medical Social Work. University of Minnesota. Social Service Monographs Number 34. Cloth Price \$1.50. Pp 163. Chicago: The University of Chicago Press. 1935.

During the spring of 1931 the author sojourned in a part of England where convalescent care is highly developed. The survey covered England, Wales and Scotland. Accommodations, in the form of convalescent homes in those countries are much more highly developed than in America. The three countries surveyed had a total of 431 such institutions in 1930 the year for which statistics are given. The book is an interesting report on institutional care for convalescents in the countries covered. The author gives a mass of information about the whole subject, instead of going into certain phases intensively. Reference is made to the rather general impression that institutions for convalescent care are badly needed in the United States. As usual, no explanation is made of why such institutions have not developed in great numbers in America and why many attempts to build them have died out for lack of support. Frequent references to voluntary contributory organizations in Great Britain show that cooperation on a noncommercial basis is highly developed.

**For Stutterers.** By Smiley Blanton M.D. Assistant Professor of Clinical Psychiatry. Cornell University Medical College and Morgantown, W. Va. Blanton. With an introduction by J. Ramsay Hunt M.D. Sc.D. Professor of Neurology. Columbia University. Cloth Price \$2. Pp 191. New York & London: D. Appleton Century Company, Inc. 1936.

These authors are known for their previous works on speech difficulties and child guidance. The present book is a conglomeration of material which they have collected in their work in these two fields and combined into a book which is neither "fish, fowl nor good red meat" dealing with the problem of stuttering. One cannot cavil with the fact that the authors are qualified to write the present book and certainly this sort of book has been needed, namely one that could deal with the matter of stuttering from the standpoint of medical psychology. The statement on the jacket that this is the first book to approach the problem of stuttering from that point of

view is obviously untrue. Bluemel and others have previously published work from this standpoint, and books are already available for the student of speech correction. The present volume is too elementary for those technically trained to do speech work and leaves too much for granted for the layman or the stutterer, without other background to use. As a matter of fact, books on stuttering have aroused false hopes on the part of the sufferers and it seems likely that the present volume will be no less likely to do so. For the psychiatrist who wishes to do some speech correction, the book contains a number of excellent clues. Two chapters, for instance, are devoted to a discussion on emotional patterns in the Freudian sense. There are brief chapters on the theories of stuttering, causes of the symptom complex and brief chapters devoted to treatment. From the standpoint of practical therapeutics, the authors' vast experience cannot be ignored and can be easily perceived. Emphasis is laid on the fact that too much attention, directed toward a child's stuttering, is almost universally harmful, and of course the whole point of view that Freudian interpretations are helpful in explaining stuttering and reveal methods of treatment is one which represents the thought of many of the most experienced and competent child guidance experts at present.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Accident Insurance. Extraction of Tooth as "Surgical Treatment."**—The defendant insurance company issued a policy to Mrs. Carroll providing certain benefits for "loss resulting directly and independently of all other causes from bodily injuries effected solely through external, violent and accidental means." The policy excluded from coverage "accident, injury, death or other loss caused directly or indirectly by medical or surgical treatment." In treating the insured for pyorrhea, a dentist extracted a tooth. Acute gangrenous cellulitis developed, from which the insured died. The beneficiary named in the policy recovered judgment against the defendant insurance company and an appeal from that judgment was eventually determined by the commission of appeals of Texas, section A.

While the extraction of the insured's tooth, and the commission of appeals constituted the accidental means whereby the death of the insured was caused and was external and violent, yet the extraction constituted "surgical treatment." Hence the death was not covered by the policy. The judgment in favor of the beneficiary was accordingly reversed and judgment given for the insurance company. The opinion of the commission of appeals was adopted by the Supreme Court—*Century Indemnity Co. v. Carroll (Texas) 86 S.W. (2d) 1083*.

**Liability for Injury to Unborn Child.**—A truck belonging to the Magnolia Coca Cola Bottling Company collided with an automobile driven by one of the defendants in error, Mrs. Jordan who was pregnant at the time. As a result of the collision, Mrs. Jordan gave premature birth to twin babies. One baby, after living nineteen days, died as a result of the injuries suffered by reason of the collision. Suit was instituted against the company and the trial court gave judgment for the injuries suffered by Mrs. Jordan but refused to render judgment for the loss of the services of the child, on the ground that "the law gives to parents no cause of action for the loss of a child which dies as a proximate result of injuries while it is still quick in the womb of its mother, even though such injuries be inflicted by the negligence of the defendant." The court of civil appeals reformed the judgment of the trial court by allowing an additional sum for the death of the child (47 S.W. (2d) 901, abstr. THE JOURNAL Feb. 4, 1933 p. 365). The company then appealed to the Supreme Court of Texas.

The Supreme Court could find no decision by an appellate court of final jurisdiction holding that damages for prenatal

injury may be recovered either by the injured child if it is born and lives or by its beneficiaries in the event of its death from such injury. The principal reasons given in the decisions for denial of recovery, the court said, are briefly stated in *Drobner v Peters* 232 N Y 220, 133 N E 567, 20 A L R 1503

Lack of authority practical inconvenience and possible injustice no separate entity apart from the mother and therefore no duty of care, no person or human being in esse at the time of the accident

The arguments which have been advanced in favor of recovery are (1) that, when the law punishes for murder one who inflicts injuries on an unborn child from which it dies after having been born alive, it should in reason give the infant which survives the right to recover damages occasioned by the same injuries, (2) that a law which protects the unborn child in inheritance and devise and other rights of property and withholds relief or redress for more serious wrongs which affect its physical well being is wanting in symmetry and denies the greater right while respecting the lesser (3) that if the unborn child reaches such stage and development that it could and would live if then born or otherwise delivered from its mother it should be regarded as a distinct being toward which the duty of exercising care exists, and (4) that on principle, and regardless of precedents, recovery should be permitted, there being a wrong and consequent injury

But, said the Supreme Court in *Texas* a person cannot be convicted of homicide of a newly born child unless it is shown that at the time the offense is alleged to have been committed the child has been completely expelled from its mother, and that after being thus born it breathed and its blood circulated independent of its mother. The decisions which protect unborn children in property and property rights, continued the court, only undertake by indulgence of a fiction of existence to save to the child property which in fairness belongs to it. They do not support the imposition of liability on others for torts indirectly committed against a prospective human being, one unseen and unknown, and who may never have an independent existence. The third argument in favor of recovery, said the court, raises the question: When does life begin? "In civil rights life begins with birth." In the law of inheritance life begins with conception." 37 C J 347. In *State v Winthrop*, 43 Iowa 519, 22 Am Rep 257, it was held that a child does not have an independent life, and so is not a human being, until the establishment of respiration and independent circulation. The arguments in the present case in favor of recovery of damages for injury to the unborn child, observed the court, go no further than to insist that a recovery should be had if the injury is suffered at a time when the child has become viable, that is, when it could live apart from its mother. They concede that up to that time the child is only a part of its mother, and that injury to it is injury to her and not to a separate entity. But how, questioned the court, is the exact time for this change of status to be determined? The birth of the child alive affords no satisfactory proof of its viability at the time of a previous injury. In a given case, resort must be had to scientific or expert testimony. How can the most expert mark a line between the viability and the nonviability of an unborn child? The law must be practical. "Neither does the medical or scientific recognition of the separate entity of an unborn child aid in determining its legal rights. The law cannot always be scientific or technically correct. It must often content itself with being merely practical."—*Utts v Milwaukee Electric R & L Co* 164 Wis 272, 159 N W 916, L R A 1917B, 334. Finally, the court said, injuries often are suffered for which no relief can be granted. The task is not to undertake in the particular case to do justice in the abstract, but to ascertain whether in accordance with sound principles of the law of torts there is liability. The existence of duty and breach of duty constitutes in the law of negligence the foundation of liability. Tested by the knowledge experience and conduct of the ordinary prudent man, the defendant, in the opinion of the court, owed no duty of care to the unborn child in the present case, apart from the duty to avoid injuring the mother.

The Supreme Court, therefore, reversed the judgment of court of civil appeals so far as it allowed damages for the death of the child—*Magnolia Coca Cola Bottling Co v Jordan (Texas)*, 78 S W (2d) 944

## Society Proceedings

### COMING MEETINGS

- American Medical Association Kansas City Mo May 11-15 D C West 535 North Dearborn St Chicago Secretary
- American Academy of Pediatrics Kansas City Mo May 11-17 Clifford G Grulee 636 Church St Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Kansas City Mo May 11 Dr Loring T Swaim 372 Marlboro St Boston Secretary
- American Association for the Study of Gout, Chicago June 10-11 W Blair Mosser 133 Biddle St Kane Pa Corresponding Secretary
- American Association for the Study of Neoplastic Diseases Bp June 11-13 Dr Eugene R Whitmore 2139 Wyoming Ave NW Washington D C Secretary
- American Association for Thoracic Surgery Rochester Minn May 4 Dr Richard H Meade Jr 2116 Pine St Philadelphia Secretary
- American Association of the History of Medicine Atlantic City N J May 4 Dr Edward J G Beardsley 1919 Spruce St Philadelphia Secretary
- American Association on Mental Deficiency St Louis May 14-15 Groves B Smith Beverly Farms Godfrey Ill Secretary
- American Bronchoscopic Society Detroit May 27 Dr Lyman Rich 319 Longwood Ave Boston Secretary
- American Dermatological Association Swampscott Mass June 4-6 Fred D Weidman Medical Laboratories University of Pennsylvania Philadelphia Secretary
- American Gastro Enterological Association Atlantic City N J May 4 Dr Russell S Boles 1901 Walnut Street, Philadelphia Secretary
- American Gynecological Society Absecon N J May 25-27 Dr O Schwarz 630 S Kingshighway Blvd St Louis Secretary
- American Heart Association Kansas City Mo May 12 Dr H Marvin, 50 West 50th St New York Acting Executive Secretary
- American Laryngological Association Detroit May 25-27 Dr James Babbutt 1912 Spruce St, Philadelphia Secretary
- American Laryngological Rhinological and Otolological Society Den May 18-20 Dr C Stewart Nash 708 Medical Arts Bldg Rochester N Y Acting Secretary
- American Neurological Association Atlantic City N J June 13-15 Henry A Riley 117 East 72d St New York Secretary
- American Ophthalmological Society Hot Springs Va June 13-15 J Milton Griscam 255 South 17th St Philadelphia Secretary
- American Orthopedic Association Milwaukee May 18-21 Dr Ralph Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Detroit May 28-29 Dr Thomas J Har 104 E 40th St New York Secretary
- American Pediatric Society Bolton Landing N Y June 11-13 Hugh McCulloch 325 North Euclid Ave St Louis Secretary
- American Proctologic Society Kansas City Mo May 11-12 Dr C Rosser Medical Arts Bldg Dallas Texas Secretary
- American Psychiatric Association St Louis May 4-8 Dr William Sandy State Education Building Harrisburg Pa Secretary
- American Radium Society Kansas City Mo May 11-12 Dr E Skinner 1103 Grand Ave Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 4 Dr J M Hayman Jr Lakeside Hospital Cleveland Secretary
- American Society for the Hard of Hearing Boston May 26-30 Betty C Wright 1537 35th St N W Washington D C Secretary
- American Society of Clinical Pathologists Kansas City Mo May 6-8 Dr A S Giordano 531 North Main St South Bend Ind Secretary
- American Surgical Association Chicago May 7-9 Dr Vernon C Da 59 East Madison Street Chicago Secretary
- American Therapeutic Society Kansas City Mo May 8-9 Dr Oscar Hunter 1835 Eye St N W Washington D C Secretary
- American Urological Association Boston May 18-21 Dr Clyde Deming 789 Howard Ave New Haven Conn Secretary
- Association for the Study of Allergy Kansas City Mo May 11-12 Warren T Vaughan 808 Professional Bldg Richmond Va Secretary
- Association for the Study of Internal Secretions Kansas City Mo May 11-12 Dr E Kost Shelton 34 Micheltorena St Santa Barbara Calif Secretary
- Association of American Physicians Atlantic City N J May 4 Dr Hugh J Morgan Vanderbilt University Hospital Nashville Tenn Secretary
- California Medical Association Coronado May 25-28 Dr F Warnshuis 450 Sutter St San Francisco Secretary
- Conference of State and Provincial Health Authorities of North America Vancouver B C June 22-23 Dr A J Chesley State Department of Health St Paul Minn Secretary
- Connecticut State Medical Society Hartford May 20-21 Dr Charles Comfort Jr 27 Elm Street New Haven Secretary
- District of Columbia Medical Society of the Washington D C Secretary Dr C B Conklin 1718 M St N W Washington D C Secretary
- Illinois State Medical Society Springfield May 19-21 Dr Harold Camp 202 Lahl Building Monmouth Secretary
- Maine Medical Association Rangeley June 21-23 Miss Rele Gardner 22 Arsenal St Portland Secretary
- Massachusetts Medical Society Springfield June 8-10 Dr Alexander Begg 8 The Fenway Boston Secretary
- Medical Library Association Rochester Minn May 25-27 Miss J Doe 2 E 103d St New York Secretary
- Medical Women's National Association Kansas City Mo May 10-11 Dr Laila A Coston Conner 333 East 68th St New York Secretary
- Minnesota State Medical Association, Rochester May 3-6 Dr E Meyerding 11 West Summit Ave St Paul Secretary
- Mississippi State Medical Association Greenville May 5-7 Dr T Dye McWilliams Building Clarksdale Secretary
- New Hampshire Medical Society Manchester May 26-27 Dr Carl R Metcalf 5 S State St Concord Secretary
- New Jersey Medical Society of Atlantic City June 2-4 Dr J Morrison 66 Milford Ave Newark Secretary

New Mexico Medical Society Carlsbad May 68 Dr L B Cohenour  
219 West Central Ave Albuquerque Secretary  
North Carolina Medical Society of the State of Asheville May 46  
Dr L B McBrayer Southern Pines Secretary  
North Dakota State Medical Association Jamestown May 17 19 Dr  
Albert W Skelsey 20½ Broadway Fargo Secretary  
Rhode Island Medical Society Providence June 34 Dr J W Leech  
167 Angell St Providence Secretary  
Society of Surgeons of New Jersey Orange May 20 Dr Walter B  
Mount 21 Plymouth St Montclair Secretary  
South Dakota State Medical Association Sioux Falls May 46 Dr John  
F D Cook Langford Secretary  
Texas State Medical Association of Houston May 25 28 Dr Holman  
Taylor 1404 W El Paso St Fort Worth Secretary  
West Virginia State Medical Association Fairmont June 8 10 Mr Joe  
W Savage Public Library Bldg Charleston Executive Secretary

## Current Medical Literature

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Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Psychiatry, New York

92 763 1006 (Jan.) 1936

- Traumatic Psychoses Study of Fifty Committed Cases C A Bonner and Lois E Taylor, Hathorne Mass—p 763  
Anatomic Consideration in Clinical Interpretation of Brain Injuries I J Sands Brooklyn—p 771  
Studies in Dynamics of Human Craniocervical Cavity J Loman and A Myerson Mattapan Mass—p 791  
Alleged Increase in Incidence of Major Psychoses H B Elkind Boston and M Taylor Pittsburgh—p 817  
Psychiatric Implications of Education Preschool D A Thom Boston—p 827  
Psychiatric Aspects of Education Grade Period F H Allen Philadelphia—p 837  
Psychiatric Implications of High School G S Stevenson New York—p 845  
Place and Possibilities of Mental Hygiene Approach on College Level T Raphael Ann Arbor Mich—p 855  
\*Hematomorphyrin Treatment of Depressive Psychoses L R Angus, Hartford Conn—p 877  
Hematomorphyrin Treatment of Severe Depressions D L Steinberg Elgin Ill—p 901  
Criminal Behavior in Later Period of Life P L Schroeder Chicago—p 915  
Effect of Vitamins A and D and Mineral Administration in Dementia Praecox J Notkin Frances Krasnow Viola Huddart W J Thompson and L E Watts Poughkeepsie N Y—p 925  
Psychiatric Studies in Medical Education E A Strecker K E Appel H D Palmer and F J Braceland Philadelphia—p 937  
Colony Ghel A J Kilgour Toronto—p 959  
Catlepsy or Cerebral Flexibilitas in a Three Year Old Child A Blau and S H Averback New York—p 967

#### Hematomorphyrin Treatment of Depressive Psychoses

—Angus treated forty-one cases (fourteen manic depressive of the depressed type, one manic-depressive mixed, eleven involutional melancholia, nine schizophrenic, three psychoneurotic and three miscellaneous with some organic factors) with hematomorphyrin, with laboratory controls. All the cases were under hospital care, by far the majority were of long standing, and many had had previous courses of treatment of various types without any improvement. Six of the manic depressive patients, one schizophrenic and one psychoneurotic recovered or were much improved, of the remainder ten were improved, five showed slight improvement and eighteen were unaffected. The blood calcium level and the blood sugar level fell in all the cases, though to a more marked degree in the improved group. The sugar tolerance curves fell in the improved group and to a less degree in some of the unimproved cases though it remained constant or even rose in some of the latter. The improved cases showed a slight loss of weight or at most a very slight gain, while the weight in general definitely increased in the unimproved cases. The basal metabolic rate increased slightly in the improved cases but was within normal limits in the majority of all cases. The nonprotein nitrogen increased slightly in the unimproved patients but fell correspondingly little in the recovered or improved patients. There was a

general tendency in all cases to a decreased white blood count. In the improved patients the red blood count increased, while it fell in the group that remained stationary, the hemoglobin value was unchanged in the former and fell in the latter.

### Am J Roentgenol & Rad Therapy, Springfield, Ill

35 145 288 (Feb.) 1936

- Roentgen Therapy of Certain Infections F M Hodges Richmond Va—p 145  
Roentgen Aspects of Chronic Arthritis E W Spackman Philadelphia—p 156  
\*Visualization of Cerebral Vessels by Direct Intracarotid Injection of Thorium Dioxide (Thorotrast) J Loman and A Myerson Boston—p 188  
Thorium Hydroxide Sols as Opaque Mediums in Roentgenography T O Menees and J D Miller Grand Rapids Mich—p 194  
The Double Oral Method for Cholecystography L R Whitaker Boston—p 200  
\*Giant Rugae (Localized Hypertrophic Gastritis) Resembling Carcinoma J L Kantor New York—p 204  
Papilloma of Duodenum Report of Case E Schons St Paul—p 203  
Osteopetrosis (Marble Bones) Complicated by Osteogenic Sarcoma Case H D Kerr Iowa City—p 212  
Relationship Between Ethmoiditis and Ocular Disturbances S I Koeb and J H McCready Pittsburgh—p 215  
Diagnosis of Traumatic Lesions of Urinary Tract with Especial Reference to Value of Excretory Urography F O Coe Washington D C—p 218  
Roentgen Technique for Internal Fixation of Fractures of Femoral Neck C H Peterson Roanoke Va—p 226  
Modification of Radiosensitivity by Means of Readily Penetrating Acids and Bases R E Zirkle Philadelphia—p 230  
Incisional Biopsy J M Hanford and C D Haagen en New York—p 238  
Advantages and Limitations of Aspiration Biopsy H E Martin and F W Stewart New York—p 245  
Electrosurgical Biopsy G E Ward and C F Geschickter Baltimore—p 248  
Radium in Primary Carcinoma of Female Urethra L A Pomeroy, Cleveland—p 259

**Visualization of Cerebral Vessels**—Loman and Myerson have developed a method by which colloidal thorium dioxide (thorotrast) may be injected directly into the carotid artery. They have performed several hundred punctures of this vessel with little more difficulty than in entering the brachial artery. In injecting substances such as colloidal thorium dioxide, complete assurance that the needle is well within the lumen of the vessel is necessary. The best position for puncture of the carotid artery is the supine, with the head hyperextended. The side of the neck is sterilized and the skin and subcutaneous tissues at the level of the cricoid cartilage are infiltrated with procaine hydrochloride. It is well to make the puncture so that the needle enters the vessel well below the bifurcation of the common carotid artery, at the level of the cricoid cartilage. Otherwise the needle may enter the external carotid and the thorium dioxide will fail to visualize the cerebral vessels. With the fingers placed as a guide over the line of maximal impact of the artery the common carotid is punctured by a 1½ inch, number 18 or 19 gage needle, connected by means of a three-way stopcock to a 20 cc syringe. The stopcock is in turn connected to a glass tube and stiff rubber tubing both of which are filled with citrate solution, and finally to an aneroid Tyco's manometer. In puncturing the artery the direction of the needle should be as nearly parallel to the skin as possible. Once the blood enters the syringe the barrel of which is forced up by the pressure of the blood the stopcock is turned so that the carotid pressure becomes registered on the manometer. If the needle is well within the lumen of the artery, there are free and wide oscillations of the manometric needle and furthermore, compression of the carotid below the site of puncture causes a steady fall in pressure and an immediate return to normal pressure and wide oscillations following the release of the compression. Only if these two conditions obtain is the syringe disconnected and replaced by one containing the colloidal thorium dioxide. Sufficient concentration of the medium within the cerebral vessels for good roentgenographic visualization may be accomplished by compressing the homolateral carotid at the root of the neck, preventing by this means the injected substance from flowing through the cerebral vessels at too rapid a rate, or the outflow of blood from the cranial cavity may be slowed down by strongly compressing both internal jugular veins over the sternomastoid muscles. While either method of compression is being continued the medium is injected as rapidly as possible. If the needle is well within



the lumen of the artery, little resistance to the injection is encountered. Jugular compression appears to be superior to that of carotid compression because there is much less discomfort to the patient, and not only are as good arteriograms obtained but the results indicate that better phlebograms are obtained. The roentgenographic technic used was as follows: tube distance 60 inches, 80 kilovolts (peak), 50 milliamperes, exposure half a second. Lateral views of the skull were taken. Excellent arteriograms were consistently obtained by making the first exposure immediately at the completion of the injection of 10 cc of colloidal thorium dioxide. In one instance, 5 cc of the medium outlined the cerebral arteries although with not as great a contrast as with 10 cc. A fair phlebogram may be made from three to four seconds after the first film is taken.

**Giant Rugae Resembling Carcinoma**—Kantor reports two cases illustrating the difficulty of diagnosis in the presence of marked hypertrophic gastritis (giant rugae). At first the roentgenogram would seem to be misleading, particularly because the modern method of mucosal visualization is better equipped to reveal suggestive filling defects than is the original full barium sulfate meal procedure. It is just this type of service—the early demonstration of small filling defects, before the appearance of “characteristic signs and symptoms” of neoplasm—that is one of the chief contributions of roentgen diagnosis. Hypertrophic gastritis is just as real a clinical and pathologic entity as are the other organic lesions that have recently been dominating attention. One must learn to recognize the roentgen appearance of giant rugae—hence the desirability of publishing roentgenograms of proved cases and trying to differentiate them, if possible, from filling defects due to carcinoma. If such a decision cannot be made from a single observation, one must employ the principle of repeated reexaminations at frequent intervals, with rigid observation of the clinical course of the patient during the interval of watchful waiting. Even so exploratory operation will be unavoidable in some cases. Both cited cases showed resemblance to carcinoma and yet were proved benign at operation.

### American Review of Tuberculosis, New York

33 269-434 (March) 1936

Process of Resolution in Pulmonary Tuberculosis J. B. Amberson Jr. New York—p. 269

\*Relations Between Tuberculomas of Central Nervous System and Tuberculous Changes in Other Organs R. H. Jaffe and A. Schultz Chicago—p. 302

Silicosis: Some Differential Diagnostic Problems E. Mayer New York and W. Grethmann—p. 313

Efficient Collapse of Tuberculous Lung Following Diaphragmatic Hernia of Stomach L. Brown Saranac Lake N. Y. and H. L. Sampson—p. 322

Influence of Local Immunization of Lungs of Guinea Pigs on Intratracheal Infection with *Bacillus Tuberculosis* H37 R. L. Ferguson and P. R. Cannon Chicago—p. 328

\*Anthropometric Study of Tuberculous Children Helen Brenton Pryor and Helen Mathiasen San Francisco—p. 348

Disappearance of Specific Skin Hypersensitiveness in Tuberculosis: Report Based on Eighty Cases M. Paretzky Los Angeles—p. 370

Study of Tuberculosis Deaths in Silver Bow County, Montana and of Other Important Causes of Deaths in Miners J. H. Crouch Helena, Mont.—p. 396

Tuberculosis Survey in Papago Indian Area of Southern Arizona E. R. Long and H. W. Hetherington Philadelphia—p. 407

**Tuberculomas of Central Nervous System**—In 7,000 consecutive necropsies Jaffe and Schultz encountered forty-nine cases of tuberculoma of the central nervous system in forty-eight of which the brain and in one of which the spinal cord was the site of the lesions. Among these 7,000 necropsies there were 1,039 cases of active tuberculosis in 771 of which the tuberculosis was the main disease. The forty-nine cases were divided into two groups: one group in which the lesions of the central nervous system were associated with a generalizing tuberculosis and one group in which only isolated hematogenic foci were found. In the latter group there were several cases in which the tuberculomas of the central nervous system were the only active tuberculous foci. In the generalizing form of tuberculosis an early and a late type were distinguished. The early generalization is directly connected with the primary lesion while the late generalization is due either to the exacerbation of a temporarily quiescent lesion in a lymph node or to

a progressive isolated tuberculosis of the lungs or any other organ. The average age is lowest in the group of early generalization. In generalizing tuberculosis multiplicity of tuberculomas is more common than in the nongeneralizing form. In generalizing tuberculosis 50 per cent of the tuberculomas were multiple, while in the nongeneralizing tuberculosis only 29 per cent of the tuberculomas were multiple. In the generalizing tuberculosis the incidence of meningitis was 6 per cent and in the nongeneralizing tuberculosis it was 61 per cent.

**Anthropometric Study of Tuberculous Children**—Pryor and Mathiasen declare that in their present study the tuberculous children (107 boys and 103 girls) represent a highly selected group characterized by definitely diagnosed pathologic changes in the chest. They were resident in several sanatoriums and in private homes. All had positive tuberculin skin reactions and, in addition, either positive sputum, positive stomach washings or positive pathologic processes demonstrated in their chest plates. The control group represents 6,000 healthy children of the same age distribution, from the same geographic region, of the same racial stocks and, as nearly possible a random sample of the general population. The 176 tuberculous children who were seen in the various county sanatoriums probably came from the lower social economic groups, and the thirty-four in private practice probably came from the upper level. Examination of their data failed to find the so-called flat chest of tuberculosis. In this series tuberculous girls had deeper chests than the normal population, since the mean anteroposterior diameters were larger than the means of the normal population. The mean anteroposterior diameters for the tuberculous boys tended to be greater than the means for the control group until adolescence when the normal group became greater. Lateral thoracic mean diameters of the tuberculous children, both boys and girls, were less than the means of the normal population. The preadolescent tuberculous children tended to have barrel-shaped chests compared to the normal population, since they were both narrower and deeper than the controls. Mean bi-iliac diameters were the same or smaller for the tuberculous groups compared with the normal population for both sexes. The width-length indexes had consistently smaller mean values at all ages and for both sexes in the tuberculous group than in the normal control group. The authors believe that the tuberculous children therefore represented the linear type of build with smaller bones and were more delicately made than average children of the normal population. Head breadths, face measurements and necks tended to be smaller for the tuberculous children. There were very small deviations in height, the means for the tuberculous children alternating above and below the means for the normal population for both boys and girls. The tuberculous children were quite consistently below the controls in weight, but when their slender body builds were taken into consideration their relative nutrition was just as good.

### Archives of Otolaryngology, Chicago

23 267-390 (March) 1936

Obliterative Frontal Sinusitis S. R. Skillern, Philadelphia—p. 267

\*Rhinoscleroma: Is It an Indigenous Disease? W. B. Chamberlin Cleveland—p. 285

Carcinoma of Larynx: Plea for More Conservative Surgical Procedures in Certain Cases N. Patterson London, England—p. 295

Influence of Hygroscopic Agents—Glycerin and Diethylene Glycol—on Irritation from Cigarette Smoke G. B. Wallace J. F. Reinhard and R. L. Osborne New York—p. 306

Granulocytic Angina: Report of Three Cases with Two Fatalities I. Frank Chicago—p. 310

Nasofrontal Connections: Study Based on One Hundred Consecutive Dissections K. A. Kasper Philadelphia—p. 322

**Rhinoscleroma**—Chamberlin encountered two patients with rhinoscleroma in thirty years of clinical work. Neither was a native born American, although in the second case, owing to the patient's long sojourn in this country (twenty six years), there might be more than a suspicion that the disease was indigenous. He was of more than average intelligence and could not remember having been in contact with any person with a similar disease either in Russia or since his arrival in this country. Cases in native-born Americans have been reported by Wende, Watkins, Wood, Figg, Canfield, and Helwig and Jaime Hajek has suggested that the recent recognition



of scleroma throughout practically the entire civilized world may be due not necessarily to its wider distribution but rather to an increased acquaintance with the disease, previous cases having escaped unnoticed. Scleroma, or rhinoscleroma is no longer confined to a fairly definite locality in southeastern Europe but is fairly well distributed over the entire world. The bacillus of Frisch is easily obtained in all cases in practically pure culture. This bacillus is very similar to the bacillus of Friedländer and of Abel. Although typical local lesions can be produced by injecting it into animals, it fails to satisfy the postulates of Koch, in that the disease itself cannot be reproduced in animals or in man. The culture of the bacillus of Frisch is not necessary for the absolute diagnosis of the disease. Necessary, however, is the presence of the vacuolated lace or foam cells of Mikulicz and the hyaline bodies of Unna. The mode of transmission or contagion is still unknown. Roentgen radiation or radium in proper dosage offers the best hope of control or cure.

### Archives of Surgery, Chicago

32 373 576 (March) 1936

- Peace Time Bullet Wounds of Abdomen H A Oherhelman and E R Le Count Chicago—p 373  
Cirrhosis of Liver with Especial Reference to Surgical Aspects E C Henrikson Minneapolis—p 413  
Effect of Removal of Stellate Sympathetic Ganglion on Gross and Histologic Structure of Thyroid Gland Experimental Study M R Reid Cincinnati, and C Holman New York—p 452  
\*Osteomyelitis of Infants Disease Different from Osteomyelitis of Older Children W T Green Boston and J G Shannon Montreal—p 462  
Immunology of Osteomyelitis P F Stookey L A Scarpellino and J B Weaver Kansas City Mo—p 494  
Histologic Study of Meckel's Diverticulum with Especial Reference to Heterotopic Tissues H H Curd University Va—p 506  
Injection of Eosin into Knee Joint Its Value in Arthroscopy M S Burman New York—p 524  
Thermal Changes in Local Asphyxia and Reactive Hyperemia C B Huggins B H Blockson Jr and H Wilson Chicago—p 528  
A Review of Urologic Surgery A J Scholl Los Angeles E S Judd Rochester Minn J Verbrugge Antwerp Belgium A B Hepler Seattle R Gutierrez New York and V J O'Connor Chicago—p 544

**Osteomyelitis of Infants**—Green and Shannon discuss ninety-five cases of osteomyelitis in children less than 2 years of age. Streptococcal osteomyelitis occurs twice as frequently as staphylococcal osteomyelitis in infants. Antecedent infections were present in 55 per cent of the cases. When associated with infection of the respiratory tract osteomyelitis was due usually to *Streptococcus haemolyticus*, occasionally to the pneumococcus and rarely to *Staphylococcus aureus*. When associated with cutaneous lesions the organism was more likely to be *Staphylococcus aureus*. There was a history of mild trauma in 17 per cent of the cases. A diagnosis is made later in the course of the disease in infants than in older persons. Differential diagnosis demands the particular consideration of sepsis of the joints, infection of the soft tissues and scurvy with infection elsewhere. It is suggested that the differences between the osteomyelitic syndrome of infants and that of older children are largely dependent on three factors. 1 The streptococcus is observed more frequently in infants than in older children. 2 The anatomic construction of the bone in infants, characterized by larger cancellous spaces in the bone allows the infection to pass more readily from its site of origin the metaphysis, to the subperiosteal space, the periosteum is more loosely attached in the infant and allows the decompression to occur the periosteum then ruptures allowing the pus to escape into the soft tissues, without sequestration except in rare instances. 3 The absorption of dead bone occurs more rapidly in infants, as does the formation of new bone. Surgical intervention at an early period in the disease is not essential. If the condition of the patient is satisfactory and the lesion can be located definitely before operation an operation may be performed. If surgical intervention is contraindicated by the general condition of the patient, the part should be immobilized and supportive treatment should be given. If an operation is performed on the bone it should not be extensive. Adequate drainage of the fluctuant abscess in infants without operation on the bone seems to give as satisfactory results as a more extensive procedure. If the abscess is drained a prolonged search for the lesion in the bone should never be made. Pack-

ing the wound open with petrolatum gauze combined with immobilization in a plaster cast is a desirable method of treatment. The cast should be bivalved to allow for dressings. The first dressing should not be made until ten days after the operation, thus allowing granulation tissue to line the wound, and at weekly intervals thereafter with replacement of the petrolatum. The part should be immobilized until the wound has healed and there is evidence of healing in the roentgenogram.

**Injection of Eosin into Knee Joint**—Burman believes that from a practical standpoint it may be stated (even from his series of nine cases) that eosin can cause diffuse staining of normal cartilage and synovia and that, while erosions of various etiology on cartilage will stain selectively with eosin normal cartilage in the presence of these erosions will also stain usually in spots. The visualization of an eroded area is made clearer by the use of the dye. Lightly altered cartilage without erosion usually does not stain. Greatly degenerated cartilage stains diffusely. Since the dye is nonirritating and since it clarifies vision, he sees no reason why it should not be used in properly selected cases as an adjunct to arthroscopy.

### Canadian Medical Association Journal, Montreal

34 243 368 (March) 1936

- Celiac Disease F Shippam Montreal—p 243  
Endometriosis of Large Bowel A J Maclean Winnipeg Manit—p 253  
Chronic Glanders J F Burgess Montreal—p 258  
Tip of Nose Completely Sectioned Sutured Three Hours After Accident J N Roy Montreal—p 263  
Role of Anatomy in Radiologic Study of Spine W A Jones Kingston Ont—p 265  
Inguinal Hernia with Especial Reference to Sliding Hernia and New Treatment L S Mackid Calgary Alta—p 269  
\*Experimental Arsphenamine Dermatitis I F E Cormia Montreal—p 272  
So Called Mosaic Fungus as an Intercellular Deposit of Cholesterol Crystals A M Davidson and P H Gregory Winnipeg Manit—p 277  
Further Observations on Antirachitic Effect of Irradiated Fresh Milk T G H Drake F F Tidall and A Brown Toronto—p 279  
\*Use of Strophanthin in Treatment of Auricular Fibrillation H E Rykert and J Hepburn Toronto—p 281  
Neurosyphilis J C Hossack and S C Peterson Winnipeg Manit—p 284  
Primary Carcinoma of Jejunum J E Plunkett M P Foley and A M Snell Rochester Minn—p 289  
Sex Hormones and Their Value as Therapeutic Agents M C Watson Toronto—p 293  
Prolonged Toxic Effects of Local Anesthetics Cocaine Novocain and Allied Drugs Untoward Effects of Nembutal F H Wetmore Hampton N B—p 299  
\*Excessive Perspiration A H Pirie Montreal—p 301  
Industrial Tuberculosis in Montreal R V Ward Montreal—p 303  
Increased Incidence of Peptic Ulcers Among the Single Unemployed R J Brown Jasper Alta—p 306  
Choice of Treatment in Carcinoma of Bladder R Pearse Toronto—p 308

**Experimental Arsphenamine Dermatitis**—The experiments of Cormia revealed that two lots of one brand and one of another brand of neoarsphenamine varied greatly in their power to cause cutaneous sensitization of normal guinea-pigs fed on a diet high in vitamin C. The sensitizing power of one of these arsphenamines seemed to coincide roughly with that developed in a patient who had been inadvertently given a paravenous injection of the same lot of arsphenamine. A higher degree of cutaneous hypersensitivity was developed when a single lot of an arsphenamine of a high sensitizing index was used throughout the sensitizing period. The patch test was of no value in the detection of cutaneous hypersensitivity to neoarsphenamine in guinea-pigs. Cutaneous sensitivity to the arsenicals, as developed and determined by the intradermal method is apparently confined to the trivalent group. Intravenous testing may be a more accurate method of determining cutaneous sensitivity to the arsphenamines. Cutaneous arsphenamine hypersensitivity in guinea-pigs differs in its nature from that seen in man. The second intradermal injection apparently not essential for the development of arsphenamine dermatitis in man is a necessary prerequisite for the development of cutaneous sensitivity in guinea-pigs. The localized nature of the reactivity in guinea-pigs suggests that a disturbance in the local cellular equilibrium had been caused by the direct action of the arsphenamine solution. That this may be due in part to local tissue injury is inferred from the fact that vascularly

conferred arsphenamine gives rise to a cutaneous flare only when the initial injury has been followed by local cutaneous assault

**Use of Strophanthin in Treatment of Auricular Fibrillation**—Rikert and Hepburn gave uniform intravenous doses of  $\frac{1}{400}$  grain (0.00065 Gm) of strophanthin more than 200 times to thirty-three patients, of whom twenty-nine had auricular fibrillation. One patient developed ventricular fibrillation and died twenty minutes after receiving strophanthin, but she was unconscious and moribund at the time strophanthin was given and had recently been taking digitalis. Vomiting occurred in four patients, two of whom were vomiting before the drug was used. The results agree with those of Wyckoff and Goldring in that (1) a large dose of strophanthin is safe intravenously if digitalis has not been administered recently (2) febrile patients require larger doses (3) a definite reduction in heart rate is usually obtained in from five to fifteen minutes, reaching a maximum in from twenty to sixty minutes and (4) vomiting is rare. This dose of strophanthin can be repeated with safety in an hour if necessary, but the authors suggest that it should not be repeated until the rate has reached a stationary level or has started to increase. They therefore recommend strophanthin as a convenient, effective, cheap and safe drug for intravenous use when rapid reduction of the heart rate is desired (especially in cases of auricular fibrillation) or when vomiting or marked passive congestion renders the use of the alimentary route impossible or doubtful.

**Excessive Perspiration**—Pirie relates that in 1909 a patient who had received a prolonged course of roentgen treatment for a tuberculous hip joint told him that he did not perspire where the x-rays had fallen and perspired freely over the rest of his body. In the beginning of 1911 each of four patients with excessive perspiration received one epilation roentgen dose once a month for six months. After the sixth treatment every one was quite cured. Since that time the author has treated twenty cases of perspiration of the hands, eighteen of the feet, eighteen of the axillae and one of the face. At the end of 1935 he was able to follow up fifteen cases and ascertain that every one of them had remained cured. Larger doses less frequently or small doses more frequently have been found to be without benefit. The more excessive the perspiration, the more sure is the cure. By the word "cure" is meant either a bone-dry result or a condition of normal perspiration. No general bad effects have been reported from stopping this local perspiration, the only possible objectionable local effect is that in some cases slight telangiectasis follows. This, however, is rare. In treating the axillae the hair comes out and remains out permanently. In some cases it is thinned out and remains permanently sparse. The danger of producing telangiectasis has made the author refuse to treat another case of perspiration of the face. The fact that sweat glands can be completely destroyed in six months without injuring the skin gives one a hint for the treatment of carcinoma. The gland cells are overactive, just as the carcinoma cells are overactive. It is the overactive cell which is more sensitive to x-rays, but its degree of sensitivity is only slightly greater than that of the surrounding cells. In order to give the exact dose that will kill the overactive cell and leave the normal cell unharmed the best method is to extend the roentgen treatment over a long period as described for the treatment of excessive perspiration. The method of treatment is as follows: 90 kilowatts, 8 milliamperes distance 17 inches, no filter, one epilation dose. The author found this epilation dose equal to 250 roentgens. In treating the hands, care is taken to reduce the treatment if necessary so as not to destroy perspiration completely.

### Colorado Medicine, Denver

33 153 232 (March) 1936

- Change Confronting Modern Medicine R G Leland Chicago — p 164  
Better Psychiatry by the General Practitioner D F Hartshorn Fort Collins — p 168  
Modern Handling of Convergent Strabismus W M Bane Denver — p 17  
Chronic Cervicitis and Its Treatment by Electrosurgery L W Mason Denver — p 177  
Air Conditioning H Herman Denver — p 196

### Illinois Medical Journal, Chicago

69 193 288 (March) 1936

- Bacillus of Calmette and Guérin (BCG) in Immunization Against Tuberculosis S R Rosenthal, Chicago — p 209  
The Art of Cancer Therapy E G C Williams Danville — p 211  
Medical Survey in Medicine E A Kominik Chicago — p 215  
Vitamin Requirements in Pregnancy W C Danforth Evanston — p 219  
The Trachoma Situation in Southern Illinois H S Gradle A F Lenzen and A M Hayden Chicago — p 222  
First Aid in Eye Injuries T D Allen Chicago — p 226  
Eye Complications of Acute Exanthems in Children R C Garfield Chicago — p 229  
Diagnosis of Iritis S R Gifford Chicago — p 230  
Etiology of Iritis F Brawley Chicago — p 231  
Treatment of Iritis S J Meyer Chicago — p 237  
Diverticula of Female Urethra Report of Two Additional Cases A McNally Chicago — p 234  
Narcosustained Therapy in Psychosis with Heart Lesions A B Magnus Chicago — p 237  
Delivery of Shoulders in Vertex Presentation Mechanism and Modified Method of Delivery L Rudolph Chicago — p 243  
The Family Doctor Now is Formerly the Most Important Specialist in Medical Practice N S Davis 3d Chicago — p 250  
Treatment of Head Injuries A Verbrugghen Chicago — p 257  
Diseases Which Present Signs of Overirritation of Sympathetic Nerves and Their Treatment by X Rays H Langer Pittsburgh — p 256  
Cardiac Review of 1935 N Flaxman Chicago — p 266

**Narcosustained Therapy in Psychosis with Heart Lesions**—Magnus encountered a few instances of psychosis associated with cardiac involvements which proved sufficiently provocative to justify the cardiologist's attention. Generally there is no definite relation between the psychotic picture and the nature of the cardiac disturbances, including even pathologic changes that may have occasioned atrophies of the brain. However, in failure of compensation the person has transient confusional states with hallucinations, especially of sight and sometimes of touch. He becomes restless with predominating elements of fear, less frequently of pleasure. Noteworthy is the variable daily state of consciousness. In mitral stenosis one is apt to encounter evidence of impairment of memory, while in precordial distress marked anxiety states seem to be more or less constant. There are some among the frankly manic depressive types (incorrectly designated as symptomatic psychosis) in whom a disturbance of the heart function may be consequential instead. Care is to be exercised in applying sleep therapy in cardiac conditions before its value and margin of safety are ascertained. The most important complications to guard against are bronchopneumonia, collapse and drug idiosyncrasies. Of lesser importance are dehydration, urinary retention, trauma and gaseous abdominal distentions. Kidney conditions, acute or chronic, are contraindications of this treatment. Sustained narcosis was seen to be distinctly beneficial in nearly all instances of cardiac disorders encountered in cases of psychosis. The author recommends this form of therapy for use in cardiologic service in cases in which every other measure previously tried has failed.

### Indiana State Medical Assn Journal, Indianapolis

29 109 162 (March 1) 1936

- Teaching Value of Records R M Waters, Madison Wis — p 109  
Glimpses into Surgical Classroom of 1815 Through the Notebook of Robert Cravens E V Hahn Indianapolis — p 112  
Relation of the Individual Physician to County and State Medical Societies E A Meyerding St Paul — p 116  
Acute Appendicitis in Childhood S H Skrentny, Hammond — p 127  
Refractive Methods M S Harding Indianapolis — p 125  
Petrositis and Consideration of Gradenigo's Syndrome Report of Two Cases in Which Gradenigo's Syndrome Occurred E L Bulson Fort Wayne — p 129

### Iowa State Medical Society Journal, Des Moines

26 123 170 (March) 1936

- Hysterectomy Statistical Study L J Harris Iowa City — p 123  
Modern Postpartum Care and Treatment T F Hersch Cedar Rapids — p 126  
The Rhythm of Fertility J Brown Des Moines — p 129  
Nephritis and Pregnancy W F Mengert Iowa City — p 131  
The Prenatal Management of Pregnancy, with Especial Reference to Toxemia D Long Mason City — p 135  
Premature Separation of the Placenta Case Report Gail A McClure Lawrence Kan — p 138  
Tuberculous Tenosynovitis of Wrist A Steindler Iowa City — p 147  
Peripheral Nerve Injuries W D Abbott Des Moines — p 144  
Technic in Using Trichloroacetic Acid for Removal of Moles on Face and Other Parts of Body F G Murphy Mason City — p 147

**Journal of Biological Chemistry, Baltimore**

113 1340 (Feb) 1936 Partial Index

- Urinary Porphyrins in Disease K Dobriner Rochester N Y—p 1  
Studies in Histochemistry V Vitamin C Concentration of Corpus  
Luteum with Reference to Stage of Estrous Cycle and Pregnancy  
G R Biskind and D Glick San Francisco—p 27  
Nitrogen and Sulfur Metabolism in Suprarenalectomized Rats Marta  
Sandberg and D Perla New York—p 35  
Halide Distribution in Body Fluids in Chronic Bromide Intoxication  
M F Mason, Durham N C—p 61  
Glucose Metabolism of Trypanosomes (*Trypanosoma Equiperdum* and  
*Trypanosoma Lewisii*) L Reiner C V Smythe and J T Pedlow  
Tuckahoe N Y—p 75  
Provitamin D of Heat Treated Cholesterol Milcent L Hathaway  
Chicago and Dorothy E Lohb Wellesley Mass—p 105  
Determination of Free and Combined Cholesterol in Bile Cecilia  
Riegel and H J Rose Philadelphia—p 117  
True Blood Sugar Level in Insulin Shock and Convulsions L B  
Doti and M Caroline Hrubetz New York—p 141  
Copper Content of Some Human and Animal Tissues P F Hahn and  
E Fairman Rochester N Y—p 161  
Presence of Creatinine in Blood I S Danielson Boston—p 181  
Component Fatty Acids of Goat Milk Fat R W Riemenschneider and  
N R Ellis Washington D C—p 219  
Metabolism of Orally Administered Citric Acid Caroline C Sherman  
L B Mendel and A H Smith with assistance of Martha C Toothill  
New Haven Conn—p 265  
Nitrogen Solubility in Blood at Increased Air Pressures J A Hawkins  
and C W Shilling Washington D C—p 273  
Composition of Pathologic Calcium Deposits Dorothy R Mecher and  
H D Kesten New York—p 289  
Effect of Dextrose Ingestion on Cholesterol Fractions of Blood F Fitz  
and M Bruger New York—p 297

**Journal of Clinical Investigation, New York**

15 153 240 (March) 1936

- Carotid Sinus Reflex in Patients with Hypertension C D Gammon  
Philadelphia—p 153  
Nucleotide Nitrogen Content of Pathologic Human Whole Blood F  
W Allen S P Lucia and J J Eiler San Francisco—p 157  
Route of Ingested Egg White to Systemic Circulation H L Alex  
ander Katherine Shirley and D Allen St Louis—p 163  
\*Secretion of Gastric Mucin in Man Comparative Study in Normal  
Subject and in Patient with Peptic Ulcer in Response to an Alcohol  
Test Meal R K Anderson and S J Fogelson Chicago—p 169  
Observations on Nature of Serum Proteins in Nephrosis E Goettsch  
and E B Reeves New York—p 173  
Influence of High and Low Fat Diets and Thyroid Substance on Plasma  
Lipids of Nephrotic Patients I H Page and L E Farr New York  
—p 181  
Study of Serum Phosphatase in Bone Disease Helen Q Woodward  
G H Twombly and B L Cole New York—p 193  
\*Serum Lipids in Malnutrition Evelyn B Man and E F Gildea New  
Haven Conn—p 203  
Nature of Plasma and Urinary Proteins in Nephrosis A S Alving  
and A E Virsky New York—p 215  
Phenol Red Clearance in Normal Man W Goldring R W Clarke and  
H W Smith New York—p 221  
Method for Measuring Tone and Reflex Constriction of Capillaries  
Venules and Veins of Human Hand with Results in Normal and  
Disease States R B Capps Boston—p 229

**Secretion of Gastric Mucin in Peptic Ulcer**—Anderson and Fogelson assert that the quantitative measurements of gastric mucin in ulcer patients with active lesions have shown that there is a relative mucin deficiency per cubic centimeter of gastric contents in response to an alcohol test meal. This is in agreement with the hypothesis of Hurst based on qualitative observations that there exists in the ulcer patient with an active duodenal lesion a hypoprotection as a result of a relative mucin deficiency. Quantitative evidence is also supplied that such a deficiency of mucin with its attendant hypoprotection may be corrected by feeding these patients gastric mucin and thus establishing a normal relationship between the acid and mucin components of their gastric content.

**Serum Lipids in Malnutrition**—Man and Gildea consider the role which malnutrition in itself may play in determining the amount of blood lipids. They analyzed serum for lipids in thirty one emaciated patients in six patients with weight loss without emaciation and in ten subjects who have been studied during changes in the nutritional state. In the ten malnourished patients who were followed for some time the cholesterol varied with the state of nutrition. Cholesterol was below normal in twenty six of the emaciated patients and was within normal limits in five of the six nonemaciated patients. Although the initial cholesterol varied throughout a wide range improvement in nutrition was accompanied by an increase even when the first observations were not below the normal range. The fatty acids were below normal in sixteen normal in thirteen

and above normal in two of the thirty-one patients, were only below normal in one of the six patients with weight loss and varied with nutrition in five of the ten subjects studied for some time. Concentrations of lipid phosphorus were proportional to those of cholesterol. The hypocholesterolemia could not be related to the various diseases of the patients, to tuberculosis, to increased body temperature and white blood cell count to the age of the subject or to the outcome of the disease. When there was hypocholesterolemia there were usually low values for protein and albumin. The reduction in these three substances was directly related to the state of malnutrition and previous inadequate food intake of the patients.

**Journal of Experimental Medicine, New York**

63 303 464 (March 1) 1936

- Visceral Lesions Produced in Mice by Salivary Gland Virus of Mice  
H A McCordock and Margaret G Smith St Louis—p 303  
Active Immunization of Guinea Pigs with Virus of Equine Encephalomyelitis I Quantitative Experiments with Various Preparations of Active Virus P K Olitsky and H R Cox New York—p 311  
Cross Reactions of Immune Serums in Azoproteins K Landsteiner and J van der Scheer New York—p 325  
Studies on Culture Strains of European and Murine Typhus Clara Nigg New York—p 341  
Studies in Etiology of Rabbit Pox III Tests of Relation of Rabbit Pox Virus to Other Viruses by Crossed Inoculation and Exposure Experiments C K Hu P D Rosahn and Louise Pearce New York—p 353  
Id IV Tests on Relation of Rabbit Pox Virus to Other Viruses by Serum Neutralization Experiments P D Rosahn C K Hu and Louise Pearce New York—p 379  
\*Meningitis in Man Caused by Filtrable Virus I Two Cases and Method of Obtaining Virus from Their Spinal Fluids T F M Scott and T M Rivers New York—p 397  
\*Id II Identification of Etiologic Agent T M Rivers and T F M Scott New York—p 415  
Limited Neurotropic Character of Encephalitis Virus (St Louis Type) in Susceptible Mice L T Webster and Anna D Clow New York—p 433  
Studies on Pseudorabies (Infectious Bulbar Paralysis Mad Itch) III Disease in Rhesus Monkey Macaca Mulatta E W Hurst London England—p 449

**Meningitis Caused by Filtrable Virus**—Scott and Rivers describe the clinical picture presented by two patients who were suffering from a nonbacterial lymphocytic meningitis, and the method by which a virus-like agent was isolated from each patient's spinal fluid. The two agents were immunologically identical and they were etiologically related to the disease process in the individuals from whom they were obtained. Experiments in support of the viral nature of the agent are presented. Details concerning the range of susceptible hosts and the clinical and pathologic picture developed in each is given. The active agent is compared with known viruses that spontaneously affect the central nervous system of man or lower animals or that might have contaminated the authors' materials because of their proximity in the laboratory. The relative importance of their agent as a cause of disease in human beings is discussed.

**Journal Industrial Hygiene and Toxicology, Baltimore**

18 139 174 (March) 1936

- Lead Content in Duodenal Juice in Cases of Saturnism Preliminary Report N Alavdin and E Peregood Leningrad U S S R—p 139  
Allergy and Neoplasia with Especial Reference to Occupational Tumor Formation W C Hueper Wilmington Del—p 140  
Toxicology of Oxacetylene Welding Z T Wirtschafter and E D Schwartz Cleveland—p 158  
\*Urinary Excretion of Silica in Nonsilicotic Humans L J Goldwater New York—p 163  
Electrostatic Dust Count Sampler E C Barnes and G W Penney East Pittsburgh Pa—p 167

**Urinary Excretion of Silica in Nonsilicotic Subjects**—Goldwater determined the variations in urinary silica excretion in persons who had never been exposed to unusual amounts of silica dust. The method of King and Dolan was used for determining urinary silica. The study was divided into two parts: the first involving variations in specific gravity and the second involving urinary silica excretion in twenty-four hours in persons receiving known diets. For the specific gravity studies normal young physicians were used as subjects. For the studies involving silica output the subjects were convalescent patients in the wards of the Third Medical Division of Bellevue Hospital. In addition to the urinary studies a number of blood silica determinations were made. Variations in urinary

specific gravity were produced by having the subject drink varying amounts of water. The diet given to the subjects whose silica excretion in twenty-four hours was studied was relatively rich in fruit and green vegetables. The results show that urines having high specific gravities present a relatively high concentration of silica, and conversely. Furthermore, the urinary silica concentration in the same individual may show extreme variations within the space of two hours. The blood silica levels remained fairly constant during these experiments. The results of silica determinations made on twenty-four hour specimens of urine of five individuals receiving similar diets show that great fluctuations in both silica concentration and silica output may occur even under these conditions.

### Journal of Nervous and Mental Disease, New York

87 249 380 (March) 1936

- Charles Ioomis Dana. An Appreciation B Sachs New York—p 249  
Conduction of Cortical Impulses to Autonomic System E A Spiegel and W C Hunsicker Jr Philadelphia—p 252  
Incidence of Clinical Types of Neurosyphilis in Males in Pregnant and in Nonpregnant Females W C Menninger Topeka Kan and J E Kemp Chicago—p 275  
Insulin Treatment of Drug Addiction M P Chen Y L Cheng and R S Lyman Peiping China—p 281  
Reactive Psychosis in Response to Mental Disease in Family Lauretta Bender New York—p 289

### Journal of Nutrition, Philadelphia

11 103 190 (Feb 10) 1936

- Relative Vitamin A Potency of Carotene Fed in Butter Fat and Cotton Seed Oil H R Kraybill and C L Shrewsbury Lafayette Ind—p 103  
Influence of Soil and Variety on Copper Content of Grains J E Graves and A Andersen Logan Utah—p 111  
Vitamin A Reserve of Embryo and Baby Chicks A D Holmes and F Tripp Boston and P A Campbell Springfield Mass—p 119  
Amino Acid Content of Eggs and Chicks Relation to Diet and to Incidence of Chondrodystrophy A R Patton and L S Palmer St Paul—p 129  
\*Excretion of Vitamin C in Normal Individuals Following Comparable Quantitative Administration in Form of Orange Juice Cevitamic Acid by Mouth and Cevitamic Acid Intravenously Estelle E Hawley D J Stephens and G Anderson Rochester N Y—p 135  
Role of Calcium and Phosphorus in Determining Reproductive Success W M Cox Jr and Miriam Imboden Evansville Ind—p 147  
Mineral Composition of Young Rats W M Cox Jr and Miriam Imboden Evansville, Ind—p 177

**Excretion of Vitamin C**—Hawley and her associates studied the effect of variations in the daily intake of vitamin C on the urinary excretion of cevitamic acid in twelve normal young adults. The urinary excretion of vitamin C by individuals on an average normal diet varied between 15 and 28 mg in twenty-four hours. Excretion continued at a steady rate during a preliminary control period of low vitamin C intake. Considerable individual variation was observed in the urinary response to repeated test doses of orange juice, both during and after apparent saturation with vitamin C. Comparable amounts of vitamin C given orally as orange juice and as cevitamic acid resulted in similar urinary excretion curves. Cevitamic acid administered intravenously was excreted more rapidly and more completely than when given by mouth. Variations in the intake of vitamin C had no demonstrable effect on the cevitamic acid content of whole blood or on the capillary fragility.

### Kansas Medical Society Journal, Topeka

[37] 89 132 (March) 1936

- Silicosis C H Warfield Chicago—p 89  
Application of the Friedman Pregnancy Test in Diagnosis of Hydatiform Mole and Chorionepithelioma J M Nason Kansas City—p 91  
\*Some Features of Infantile Hypoglycemia F C Neff Kansas City—p 95  
Personal Experience with Angina Pectoris L M Beatson Arkansas City—p 97  
Polycythemia Vera F J McEwen Wichita—p 102

**Infantile Hypoglycemia**—During the last year Neff had the opportunity of seeing two unconscious infants who illustrate the importance of keeping in mind the existence of two somewhat similar clinical conditions with opposite blood chemical and metabolic significance. The impression is growing that diabetes in the first year is not so infrequent as the literature suggests. It is also becoming recognized that the opposite state of hypoglycemia occurs as a clinical entity which until recently

has been overlooked. The picture is not well known, it has no simple laboratory tests to reveal it, nor are blood sugar determinations run in a routine manner, as is the present practice in diabetes. The first important procedure in the clinical study of these conditions is the prompt examination of the urine. Even though the urine is sugar free, one should proceed to determine the percentage of sugar in the blood, as its knowledge may be of the greatest help, some cases of diabetes have intervals when there is a so-called high renal threshold for dextrose, the sugar not appearing in the urine until the glycemia is much above the customary level. A diabetic child in the author's hospital recently showed no sugar in the urine with the concentration in the blood of 197, 189 and 231 mg respectively, but at 363 mg the urine contained about 5 per cent. Blood sugar determination in nondiabetic coma and convulsions may reveal a state of hypoglycemia as the cause.

### Minnesota Medicine, St Paul

19 131 194 (March) 1936

- Pathogenesis of Gallbladder Disease E Andrews Chicago—p 131  
Chronic Duodenal Stasis Report of Eight Cases J A Wilson St Paul—p 141  
Fractures of Neck of Femur M S Henderson Rochester—p 147  
Clinical Notes on Results of Fever Therapy in Different Diseases Report of the Fifth Annual Fever Conference Dayton Ohio May 1935 P S Hench Rochester—p 151  
Successful Total Cystectomy for Recurring Carcinoma of Uterus and Notes on Some Very Large Vesical Tumors W Walters and N W Thiessen Rochester—p 157  
Prostatic Massage or Resection? J L Emmett Rochester—p 160  
The Special Operative Technique in Certain Types of Prostatic Disease A E Benjamin Minneapolis—p 166  
Diseases of Pituitary Body Amenable to Surgery J G Love Rochester—p 169  
Obstetrics in General Practice B J Gallagher Waseca—p 174

### Missouri State Medical Assn Journal, St Louis

33 85 120 (March) 1936

- Clinical Manifestations of Anorectal Disease G H Thiele Kansas City—p 85  
\*Hypoglycosuria in Cretinism J P Costello St Louis—p 88  
\*Institutional Outbreak of Shiga Dysentery and Its Control T C Lipp Fulton—p 90  
Physiology and Histology of the Pregnant Cervix H B Lacey Kansas City—p 95  
Toxicity of Dinitrophenol C M MacBryde St Louis—p 99  
Value of Leukocyte Count in Pulmonary Tuberculosis D G Street Columbia—p 101  
Lymanhurst Interpretation of Tuberculosis C A Stewart Minneapolis—p 103

**Hypoglycosuria in Cretinism**—Costello reports a case of hypoglycemia with cretinism in a child who was first seen at the age of 4 months, weighed 22 pounds (10 Kg) and presented a clinical picture of cretinism. One-fourth grain (0.016 Gm) of thyroid was given three times a day and signs of improvement were seen immediately. At the age of 9 months he was taking 1 grain (0.065 Gm) three times a day, weighed 19½ pounds (8.8 Kg) and was able to sit up when assisted. At 14 months he could sit up alone, weighed 21 pounds (9.5 Kg) and was getting 1½ grains (0.1 Gm) three times daily. When he weighed 22½ pounds (10.2 Kg) at the age of 22 months, he was beginning to walk. At this time, however his parents discontinued therapy and for eight years the patient was treated by a chiropractor. He gradually grew worse and returned to the author at the age of 10 years. He was then 46½ inches (117 cm) tall and weighed 52 pounds (23.6 Kg). His mental ability was that of a 7 or 8 months old child, he was able to walk but could not talk. General convulsions resembling epilepsy were frequent and lasted for from two to five minutes. Defecation was possible only after enemas. His complexion was pasty and on his fingertips was a peculiar nicotine-like stain which could not be removed with ordinary solvents. According to past history, this had been present for the last two years. The teeth showed early decay and the hair was thin and dry. There was a general pseudo edema over the entire body, the lips and tongue were thick and the muscles of the extremities resembled muscular dystrophy. The liver and spleen were palpable, the genitalia well developed and reflexes sluggish. The blood creatinine was insufficient for determination and the blood sugar was 40. August 9, one-half gram (0.032 Gm) of thyroid was given three times daily and 5 ounces (140 Gm) of sugar was put in the daily diet with the hope of increasing the blood sugar content. The addition of

sugar does not necessarily raise the blood sugar, but it does fill the glycogen depots of the body. Apparently, his pancreas was overfunctioning owing to the lack of the antagonistic effect of the thyroid. August 23 the creatinine was 0.7 mg and the sugar 53.9. Thyroid was increased to 1 grain three times daily and on August 30 the creatinine was 1.3 and sugar 65.8, the weight was 52½ pounds (23.8 Kg). For the first time in three years he had a normal bowel movement and his convulsions were less frequent. September 27 the creatinine was normal and the sugar 50, his convulsions had disappeared and he was attempting to speak for the first time. His facial expression had undergone a marked change, he obeyed commands, took a keener interest in his surroundings and was changed in every respect.

## New England Journal of Medicine, Boston

214 401 450 (Feb 27) 1936

- Cancer of Rectum and Sigmoid E P Hayden Boston—p 401  
Calcification in Annulus Fibrosus of Mitral Valve J H Marks Fall River Mass—p 411  
Urologic Aspects of Vesicovaginal Fistula W C Quinby Boston—p 415  
Types of Edema and Their Treatment H A Christian Boston—p 418

214 451 500 (March 5) 1936

- One Hundred Untreated Cancers of Rectum E M Daland C E Welch and I Nathanson, Boston—p 451  
Distribution of Acute Heat Effects in Various Parts of the World G C Shattuck Boston and Margaret M Hilferty Leominster Mass—p 458  
Anesthetic Emergencies U H Eversole Boston—p 468  
Relief of Pain by Subarachnoid Injection of Alcohol J E Dunphy Boston and R E Alt Beverly Mass—p 472  
Primary Carcinoma of Jejunum Report of Two Cases E M Hodgkins Boston—p 477

## New York State Journal of Medicine, New York

36 303 382 (March 1) 1936

- Treatment of Cancer Patients Study of End Results in Three Hundred and Fifty One Autopsied Cases I I Kaplan New York—p 303  
Vaccine Therapy in Chronic Arthritis J Kovacs New York—p 317  
Bacteremia Following Instrumentation of Infected Urinary Tract J H Powers Cooperstown—p 323  
Acute Appendicitis in Infants and Children Under Five Years of Age J H Heyl New York—p 332  
Treatment of Placenta Praevia by Conservative Measures W L Ekas Rochester—p 341  
Treatment of Moles and Verrucae Trichloroacetic Acid as an Analgesic Agent R R M McLaughlin New York—p 347

**Treatment of Moles and Verrucae**—McLaughlin states that a cursory review of the literature fails to show that trichloroacetic acid or the newer dichloroacetic acid has been used as an analgesic for subsequent desiccation with the Oudin current in the removal of nonmalignant moles and verrucae of the face. The method which he uses is as follows: If there is much hyperkeratosis, the surface of the lesion is shaved down. The acid is then applied full strength to the surface of the lesion with a suitable applicator. Any bleeding that may occur following shaving will be controlled by the action of the acid. After a minute or two when the painted area becomes thoroughly whitened it will be found that a degree of analgesia has developed which, in most instances is sufficient to permit light interrupted desiccation. This light desiccation will increase the analgesic effect until a moderately strong current may be used without discomfort. A slight burning from the acid and a sensation of warmth from the desiccation will usually be the only subjective sensations. The desiccation is continued until the surface of the lesion appears to be level with or slightly below the surrounding normal skin. There is a shrinking effect, which exaggerates the amount of destruction that actually occurs. If the desiccation is carried to the point at which the surface of the lesion appears to be level with the skin it will be found that complete destruction of the lesion has not been accomplished and more treatment is needed. It is often advisable to do this since the final result from fractional destruction of soft moles and fibromas may be no visible scar. The interval between treatments should be two or three weeks so that epithelization is completed before further treatment is given. After each treatment a crust forms within a few days. This should be protected and allowed to drop off. In any event the final scar will usually be smooth and soft. The method is

suitable for almost any lesion requiring desiccation: vascular nevi, scar cicatrices, keratoses and even small "corns." It is possible to curet the lesion after treatment, but a reapplication of the acid is necessary before further desiccation is done.

## Philippine Islands Med Association Journal, Manila

16 158 (Jan) 1936

- Safeguarding the Nation's Health J Fahella Manila—p 3  
Physique and Man Power of the Filipino Race and the Commonwealth J C Nafias Manila—p 10  
\*Heterophyidiasis III Ova Associated with Fatal Hemorrhage in Right Basal Ganglions of the Brain C M Africa W de Leon and E Y Garcia Manila—p 22  
Bilateral Kidney Disease and Hypertension H P Weinrenner Frankfurt-on Main Germany—p 27

**Ova Associated with Hemorrhage in Basal Ganglions**—In the course of their studies on heterophyidiasis Africa and his associates encountered ova in what appeared to be old sites of capillary hemorrhages in the neighborhood of a large clot in the right basal ganglions of the brain in a case in which death was determined to be due to cerebral hemorrhage, and, in the same patient, adult *Monorchotrema taihoku* and *Heterophyes brevicaca* were recovered from the small intestine. The sections in which the eggs were found were taken from the posterodorsal wall of a large clot with irregular edges, measuring about 7 by 5 cm located in the lower limb of the internal capsule. So far as the authors are aware this is the first time that such eggs have been found in the brain.

## Radiology, Syracuse, N Y

26 131 260 (Feb) 1936

- Roentgenographic Changes Following Introduction of Mineral Oil in Lung Report of Three Cases K S Davis Los Angeles—p 131  
Bronchiectasis Its Diagnosis and Treatment A C Christie Washington D C—p 138  
Encephalography Value of Second Day Examination E P Pendergrass and P J Hodes Philadelphia—p 146  
\*Nasopalatine Duct Cysts M Goodman Brooklyn—p 151  
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Sixth Installment) I S Trostler Chicago—p 158  
Roentgen Diagnosis of Osteoporosis and Its Limitations E Lachmann and Mary Whelan Oklahoma City—p 165  
Uterine Corpus Cancer W T Murphy Buffalo—p 178  
Irradiation Treatment in Carcinoma of Uterus W E Costelow Los Angeles—p 193  
\*Benign Prepyloric Ulcer A C Singleton Toronto—p 198  
Primary Malignant Tumors of Small Intestines H P Dough and H C Jones Detroit—p 209  
Roentgen Diagnosis of Malignant Tumors of Stomach H Hauser and G T Pack New York—p 221

**Nasopalatine Duct Cysts**—Goodman declares that the roentgenologist should consider the possibility of the presence of a nasopalatine duct cyst whenever he observes an area of decalcification in the region of the incisor foramen. He should not rely on the routine lingual study of the upper incisor teeth in such cases but make special occlusive and stereoscopic examinations to diagnose the case properly and also to determine the relationship of the apexes of the adjacent incisor teeth to the cystic area. The error of diagnosing a small cyst as an enlarged incisor foramen should be avoided when in doubt, subsequent follow-up roentgenographic studies may show enlargement of the area of decalcification and prove it to be a cyst. Nasopalatine duct cysts are not as rare as formerly thought, and it is advisable to interpret cystic areas in the region of the incisor foramen which have no connection with the apexes of the incisor teeth as nasopalatine duct cysts. However, in cases in which these cysts have enlarged to such an extent as to encroach on these apexes, the differential diagnosis between such cysts and root or dentigerous cysts may not be possible from the roentgenograms alone, the history of the case may be of some aid if repeated swelling in the region of the palatine papilla had occurred. A thorough roentgenographic study of cases presenting an area of decalcification in the region of the incisor foramen will aid the oral surgeon. It will also often prevent the extraction of vital and normal incisor teeth by the dental surgeon as the result of erroneous interpretation of root abscess in the routine lingual study.

**Benign Prepyloric Ulcer**—In order to determine the relative and actual frequency of benign and malignant ulceration in the prepyloric portion of the stomach, Singleton has reviewed



the roentgenograms of all cases in which a diagnosis of gastric ulcer was made in the department of radiology of the Toronto General Hospital since January 1932. The prepyloric segment has been limited for the present study to include only the terminal inch (2.5 cm) of the stomach. The records show 145 cases of benign gastric ulcer, of which fifteen involved the prepyloric segment and 130 were above this region, on or near the lesser curvature. Of the fifteen patients with ulcer in the prepyloric segment seven had partial gastrectomy, and microscopically, their lesions were found to be benign gastric ulcers within 1 inch of the sphincter in each case. Each of the eight cases in which resection was not performed presented a clinical history quite compatible with ulcer roentgenologically; each showed a well defined prepyloric crater and in each case relief of symptoms and disappearance of the crater followed medical treatment. Clinically these patients have remained well and have given negative roentgen appearances over periods varying from a few months to three years. To provide a comparison, the cases in the corresponding period of time presenting the roentgen evidences of gastric cancer were reviewed with regard to the incidence of carcinoma in the pyloric end of the stomach and as to the number that involved only the small prepyloric segment. This series comprised 133 cases of gastric cancer, of which sixty involved the cardiac end or the pars media and seventy-three the pyloric end of the stomach. Of the seventy-three cases of carcinoma of the pyloric end thirteen involved only the small prepyloric segment of the stomach. These thirteen cases include four malignant prepyloric ulcers. If both series of cases showing evidence of ulcer within 1 inch of the proximal border of the sphincter are considered it is observed that fifteen of nineteen cases are benign if clinical and roentgen evidence alone is accepted. Of eleven cases in which microscopic examination of the lesion was obtained seven were found to be benign as compared to four with carcinomas. As to the accuracy of roentgen interpretation in the seven cases of benign prepyloric ulcer operated on in four the preoperative diagnosis was benign ulcer while in the other three cases the author felt that probably the lesion was benign ulcer but because of insufficient response to medical treatment and the quoted high incidence of malignant degeneration in prepyloric ulcers he felt that he could not exclude carcinomatous ulcer. In three of the four cases classified as malignant prepyloric ulcer the preoperative roentgen diagnosis was gastric cancer. The fourth case was diagnosed benign and, microscopically, showed carcinoma developing in a benign chronic ulcer.

### Surgery, Gynecology and Obstetrics, Chicago

62 525 652 (March) 1936

- \*Risk to the Infant in Breech Delivery. T R Goethals Boston—p 525
- Different Forms of Nongeneralized Fibrous Osteodystrophy. Localized Diffuse Monostotic Unilateral and Monomelic Form. E Freund and C B Meffert Iowa City—p 541
- \*Relation of Chronic Mastitis to Certain Hormones of Ovary and Pituitary and to Coincident Gynecologic Lesions. Part II. Clinical and Hormone Studies. H C Taylor Jr New York—p 562
- Reproductive Efficiency Before and After Birth of Malformed Children. Study of Four Hundred and Five Consecutive Families. D P Murphy Philadelphia—p 585
- \*Local Anesthetics Producing Prolonged Analgesia. Elimination of Pain After Rectal Operations. N J Kilbourne Los Angeles—p 590
- Primary Shock. Note. F A Fender San Francisco and P Guptill Rochester N Y—p 605
- Technic of Gastrectomy. R A Meyer Chicago—p 611
- Retro Esophageal Gout. J H Garlock New York—p 616
- Hypertrophic Cricopharyngeal Stenosis. W L Watson and F W Bancroft New York—p 621
- Combined One Stage Closed Method for Treatment of Pharyngeal Diverticula. T A Shallow Philadelphia—p 624
- Diverticula in Anterior Urethra in Male Children. H L Kretschmer Chicago—p 634

**Risk to the Infant in Breech Delivery.**—Goethals presents a review of 1,242 breech deliveries in the Boston Living-in Hospital during a period of twenty years. The gross combined fetal (stillbirth) and neonatal death rate was 25.7 per cent. In 272 deliveries either the pregnancy was pathologic with such complications as preeclamptic toxemia, eclampsia, nephritis, syphilis, diabetes and hydramnios or labor was complicated by such conditions as placenta praevia, ablatio placentae or prolapse of the cord. Since the crude mortality in this group was 51.8 per cent the effect of pathologic pregnancy and labor as an impor-

tant factor in the high gross mortality is evident. In the 940 deliveries uncomplicated by pathologic pregnancy or labor the crude mortality was 18.5 per cent. Prematurity of the infant was common in both groups and contributed in no small measure to the crude mortality in each. Uncomplicated deliveries produced premature infants in 15.7 per cent of the cases, with a crude mortality rate of 62.1 per cent, pathologic pregnancies and labors resulted in the birth of 43.3 per cent of premature infants, with a crude mortality rate of 82.2 per cent. The risk of breech delivery alone should be computed only from cases in which uncomplicated labor occurs. This series shows the incidence of placenta praevia, ablatio placentae and prolapse of the cord to be respectively three, five and five times as frequently associated with breech presentation as with all types of delivery. In uncomplicated breech delivery the crude mortality resulting from primiparous single pregnancy was 18.1 per cent, from multiparous single, 17.2 per cent, from primiparous multiple, 24.3 per cent, and from multiparous multiple 23.8 per cent. In correcting the crude mortality figures in this series the only cases excluded are those resulting in the birth of macerated infants and grossly malformed babies. Using this standard for uncomplicated breech delivery, the corrected mortality was 13.6 per cent among 916 new-born infants, subdivided as follows: 53.6 per cent for premature, 10 per cent for immature and 6.9 per cent for mature infants. The mortality figure of 6.9 per cent, therefore, represents the risk to the living undeformed, full term infant in utero who is destined to be born by pelvic breech delivery in the absence of pathologic pregnancy on the part of the mother, and of hemorrhagic and other accidents of labor due to abnormalities of the placenta or of the umbilical cord.

**Relation of Chronic Mastitis to Certain Hormones.**—Taylor concludes that a certain minimal activity of the ovary is necessary for the development of chronic mastitis but that no relation to specific hyperfunction or hypofunction of the ovary is at present demonstrable. Exceptions and reservations must be made. In one small group of cases in which swelling of the breast sometimes with secretion, develops in the presence of a persistent follicle or corpus luteum cyst excessive secretion of estrogen is probable, but the clinical aspects of this condition are different from those of the common type of chronic mastitis with painful outer quadrant induration. It is not unlikely that an etiologic relation of other pathologic reactions of the breast to endocrine dysfunction may exist. Even for the common type of mastitis, however, it must be conceded that the present method of study has not exhausted the possibilities of such a cause. Present technical methods for the clinical determinations of estrogen and gonadotropin are far from perfect and no satisfactory test exists for the quantitative study of progestin in body fluids. A slight disturbance of gland function might cause hyperplasia in the breast when active over a number of years and yet not be obvious when studied by relatively crude laboratory methods over a month's time. Irregularities in the peaks of production or excretion of estrogen may furthermore have a significance quite aside from the total quantities chiefly discussed in this paper. Finally, it is possible that the abnormal estrogenic effects on the breasts may be the result of local conditions, such as an increased responsiveness to normal quantities of the hormone, possibly as the result of local hyperemia, or a tissue concentration of the gland substances bearing no relation either to the actual activity of the ovary or to the amount of estrogen in the blood stream. A summary of the present knowledge of the conditions under which chronic mastitis is found to develop is presented.

**Elimination of Pain After Rectal Operations.**—Kilbourne presents measurements of the local irritation and of the duration of local anesthesia produced by various agents. From the laboratory observations quinine urethane solution appears to be superior to all other known local anesthetics of prolonged action because, when such solutions, in the highest concentrations that can be used without sloughing are compared quinine urethane solution gives the longest anesthesia. Clinical experience however, raised an unexpected difficulty when quinine urethane solution was used for infiltration in operative surgery it prolongs the bleeding time so that the wound may ooze for



two or three days. For this reason it was abandoned in operative surgery. On the other hand, quinine urethane has justified expectations for the purpose of injection of anal fissure. It can be used in a higher concentration without sloughing than can quinine urea dihydrochloride. It is more stable and, most important, it does not cause such severe pain on injection as quinine urea dihydrochloride. Of course any anesthetic solution, even procaine hydrochloride, will cause pain if injected under some hypersensitive fissures, but quinine urethane solution is much less likely to cause pain than quinine urea dihydrochloride. It is now being used in a concentration of quinine hydrochloride from 1 to 3 per cent, with urethane in half the concentration of the quinine. Usually 1 or 2 cc is injected under a fissure. Quinine urethane solution may also prove of value in the injection treatment of pruritus ani. The supersaturated solution of quinine urethane used for varicose vein injection is too strong for any of these purposes. After 100 rectal operations, patients were told that they could have morphine or codeine. Of these, fourteen wanted one dose of narcotic, thirteen wanted more than one dose, while seventy-three did not want any narcotic at all.

### Texas State Journal of Medicine, Fort Worth

31 661 734 (March) 1936

- Medical Economics J H Burleson San Antonio—p 665  
Treatment of Detached Retina E H Cary Dallas—p 672  
Intravenous Urography J H Vaughan Amarillo—p 677  
Complete Unilateral Duplication of Ureter with Ectopic Opening of Supernumerary Ureter L W Pollok Temple—p 679  
Tumors of the Bladder C M Simpson Temple—p 682  
\*Some Observations on Mobile Colon C C Cade San Antonio—p 689  
Comments on the Colostomy C Rosser Dallas—p 693  
Diagnostic Features of Malignant Colon W H Cade San Antonio—p 697  
Carcinoma of Sigmoid and Its Treatment H F Connally Waco—p 699  
Late Toxemias of Pregnancy J R Bevil Beaumont—p 701  
Acute Abdominal Injuries J Gilbert Austin—p 705  
Osteoarthritis of the Spine D Spangler Dallas—p 709  
Feigned or Self Induced Eruptions D T Gandy Houston—p 712  
Pessary in Treatment of Postpartum Retrodisplacements of Uterus O Key Lubbock—p 715

**Observations on Mobile Colon**—Cade has been through the gamut of attacking a chronically inflamed appendix and of dilating supposed strictures of the ureter without relief of right-sided abdominal pain. Later he began to study ptosis with the free and movable colon and its treatment as advocated by Waugh and Coffey. He did not get the results that he believed the patient was entitled to, but some relief was secured in the majority of cases. This caused him to think that there was some value in what was being done, but as yet the proper attack had not been made. Then one day he operated on a woman suffering from acute pain in the right side severe enough to require morphine for relief. He had previously removed the appendix at the time a hysterectomy had been done for fibroid tumor. The patient did not have intestinal obstruction because a barium sulfate meal went through the intestine in the proper period of time. A pendulous mobile colon twisted on itself was found. There was a distinct twisting to the left of the colon just below the hepatic flexure with subsequent kinking of the ileum at the ileocecal valve. The condition was not severe enough to cause obstruction and the intestine was normal in color. Three interrupted sutures were taken through the lateral white line of the cecum to the parietal peritoneum and tied. This was sufficient to give a hobbling effect to the colon, but certainly not enough to support its weight and prevent ptosis. It did give, however, a straight terminal ileum so that it entered the colon approximately at a right angle as it should and was sufficient to prevent the intestine from twisting on itself again. The patient has not had any recurrence of symptoms in six years. Since that time the author has been doing this simple operation in cases in which right-sided pain could not be attributed to other causes, with the result of apparently complete relief from the pain generally a cessation of the nervous systems and a gain in weight. Because of this fact he has concluded that it is not the ptosis of the intestine or the ptosis of the ascending colon that is causing the trouble but rather the rotation permitted by its insufficient attachments with resultant twisting and narrowing of the lumen of the intestine just below

the hepatic flexure and more or less ballooning or dilatation of the head of the intestine, accompanied by kinking of the terminal ileum caused by twisting of the intestine.

### Virginia Medical Monthly, Richmond

62 685 742 (March) 1936

- Heart Disease Complicated by Pregnancy J M H Rowland Baltimore—p 685  
Present Day Treatment of Certain Malignant Diseases V W Archer and W L Kilby University—p 691  
Prevention of Puerperal Infection with Especial Reference to Labor and Postpartum Care. W R Payne Newport News—p 695  
\*The Problem of Pleural Adhesions in Pulmonary Tuberculosis E C Drash University and J B Nicholls Catawba Sanatorium—p 699  
Diabetic Neuritis W R Jordan Richmond—p 702  
Eugenic Sterilization C W Putney Staunton—p 705  
A Retrospect and a Prospect B F Eckles Galax—p 710  
Man Culture R K Flannagan Richmond—p 712  
The Medical Man His Economic Relation with the State and Society J W Hunter Jr Norfolk—p 715  
Dermatitis Medicamentosa from Dilaudid H A Hornthal Washington D C—p 722  
Intra Ocular Foreign Bodies (Magnetic) A A Burke Norfolk—p 725

**Pleural Adhesions in Pulmonary Tuberculosis**—Drash and Nicholls restate that the operation of closed internal pneumonolysis has been designed to convert an ineffective pneumothorax into a good one by dividing the offending adhesions. The operation consists of the insertion, under local anesthesia, of the thoracoscope through an intercostal puncture. The adhesions are then visualized directly and divided by means of the high frequency current. The ideal result if the operation is accomplished is the immediate collapse of the lung with the well known therapeutic effect of a successful pneumothorax. The authors report the results of 129 cases, from seven different sanatoriums, which represent all possible types of adhesions and variations in the condition of the patients. Many of them were far advanced and extremely poor operative risks. Of the 129 cases, only seven were totally unsuitable for the division of adhesions. The inoperability was based either on the type of adhesions or on the presence of extensive pleural tuberculosis. Of the seven inoperable cases, two later had a thoracoplasty with excellent results. One case required an open operation to divide the adhesions successfully. A clinically satisfactory collapse was obtained in 90.8 per cent of cases. A much higher percentage of good results was obtained in the group that showed extensive soft infiltration but without cavity formation. The division of adhesions has been accepted rather slowly by the profession, owing to the fear of complications or dangers of the procedure. That fear of the operation is unjustified is shown by the results. The operation of closed internal pneumonolysis carries much less risk and a lower operative mortality than does thoracoplasty. When a good pneumothorax can be obtained it is always preferable to a thoracoplasty. Hemorrhage has been of minor importance. The danger of empyema is also minimal. There is a definite tendency as experience increases to attempt the section of more difficult and complex adhesions. However such cases can best be handled by dividing the procedure into two or more stages. In several patients with diabetes it was noted that, after the adhesions were divided and the tuberculosis was improved, the patients' carbohydrate tolerance also was improved. This may have been due to improvement in digestive function, due in turn to a decrease of tuberculous toxicity. No cases showing intrapleural adhesions were considered for operation unless it was the firm conviction of the physician in charge that the adhesions were seriously interfering with the patient's progress, and further, that the degree of collapse was unlikely to be improved by continuation of the pneumothorax unless the adhesions could be divided. No patient should be denied the benefit of the procedure if his adhesions are of a suitable type for severing.

### Wisconsin Medical Journal, Madison

35 77 168 (Feb.) 1936

- Metastatic Infections of Genito Urinary Tract G H Ewell, Madison—p 91  
Edema of Obscure Origin with Remarks on General Treatment L M Warfield Milwaukee—p 95  
Disturbances of Female Urethra W G Sexton Marshfield—p 103  
Fractures of Neck of Femur F I Knowles Fort Dodge Iowa—p 106  
Appendicitis Study of Seventeen Hundred and Forty Three Cases T W Nuzum Janesville—p 109

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Surgery, Bristol

23 481 696 (Jan.) 1936

- Spondylitis Ankylopoietica F C Golding—p 484  
Improved Technic for Introduction of Radium Needles in Treatment of Carcinoma of Breast R Brooke—p 501  
\*Further Observations on Disturbance of Metabolism Caused by Injury with Particular Reference to Dietary Requirements of Fracture Cases D P Cuthbertson—p 505  
Esophagectomy for Carcinoma of Thoracic Esophagus E S J King—p 521  
Gastric Diverticula Report of Case Before and After Operation G A Ewart and G R M Cordner—p 530  
Method of Treating Fractures of Lower Limb Use of Combined Counterpressure and Traction System with Thomas Leg Splint and Hinged Knee Piece Attachment A L Allen—p 537  
\*Renal Rickets and Dwarfism Pituitary Disease B Chown—p 552  
Isolated Dislocation of Base of Fifth Metacarpal N Roberts and C T Holland—p 567  
Rupture of Long Head of Biceps Brachialis Notes on Four Cases H A H Harris—p 572  
Progressive Postoperative Cutaneous Gangrene H T Cox—p 576  
Intravenous Pyelography in Series of Cases After Transplantation of Ureters G G Turner and J H Saint—p 580  
Gridiron Access to Biliary Apparatus C J Marshall—p 598  
Mucoid Carcinoma of Cecum in a Boy of Thirteen Years R F Ogilvie—p 601  
Anterior Dislocation of Hip J A MacFarlane—p 607  
Calcified Cyst of Pericardium A D Wright—p 612  
Chloride Secreting Papilloma in Gallbladder Tumor of Heterotopic Intestinal Epithelium Containing Paneth Cells and Enterochromaffin Cells and Associated with Massive Chloride Loss Critical Review of Papilloma of Gallbladder A B Kerr and A C Lendrum—p 615  
\*Treatment of Acute Intramammary Abscess by Incision and by Aspiration R J V Battle and G N Bailey—p 640

**Further Observations on Disturbance of Metabolism Caused by Injury**—In the course of clinical studies Cuthbertson made attempts to prevent the loss of nitrogen that occurs during the period of increased catabolism following severe injuries due to direct violence. He observed that the ingestion of diets very rich in first class protein and of high caloric value by persons suffering from the fracture of one or more of their long bones as the result of direct violence considerably modifies the marked loss of body protein that normally occurs under such circumstances. At the height of the catabolic disturbance, however, such diets still fail to prevent this loss of protein. Measures, such as massage and manipulation, the addition of meat extractives, aminoacetic acid, hydrolysate of mixed or tissue, gelatin and sodium caseinate, and diets of high caloric value but average protein content, similarly failed to stem the loss of protein and generally proved less successful in mitigating the drain on the body's reserves. The catabolic disturbance is characterized by an increase in the basal consumption of oxygen with an attendant rise in pulse rate and temperature, and by parallel rises in the urinary output of nitrogen, phosphorus and sulfur and, to a less extent potassium. The creatinuria that develops and parallels the rise in total nitrogen is accompanied by little change in the creatinine excretion, such change as occurred took the form of a slight diminution during the period of maximal creatinuria. Two control subjects who received diets rich in first class protein and of high caloric value exhibited nitrogen equilibrium.

**Renal Rickets and Dwarfism**—In the last two years Chown has seen two babies, sisters having from birth deformities like those of severe rickets. A few days after birth they began to have curious spells of sham joy. Both had a hypercalcemia but normal or slightly reduced phosphatemia without discernible progressive decalcification of the skeleton. One died at 3 months and the other at 6. Both had early pathologic changes in the kidneys which would have led to chronic nephritis. At first the author thought that these were cases of congenital osteitis fibrosa cystica, but he now believes that the two children were suffering from a form of the disease variously called renal rickets dwarfism or infantilism. If this is true the cases add weight to the opinion that these diseases are due to endocrines running amuck, the kidneys being but innocent bystanders. His argument in proof of the thesis that a lesion of the pituitary-diencephalic mechanism is the primary cause of the symptom complex called renal rickets is as follows:

- 1 Malformation of the pituitary has been found in these cases.
- 2 The associated symptoms of dwarfing, polyuria, infantile and urinary tract dilatation can be caused by such a lesion.
- 3 The nephritis is not primary but is secondary to an abnormal mineral metabolism, itself the result of faulty bone growth.
- 4 The faulty bone growth therefore not being due to the nephritis, and the remaining symptoms being due to pituitary-diencephalic disease, it is to be presumed that the bone disease is due to the same cause. Should this argument prove correct, it offers some hope for these previously hopeless cases, for substitution therapy could in theory produce normal bone growth in the springing-up periods and so save the kidneys.

**Treatment of Acute Intramammary Abscess, by Incision and by Aspiration**—Battle and Bailey describe a method of aspirating breast abscesses and washing them out with dilute solution of sodium hypochlorite. The solution has been found to give good results. They review the whole series of cases and attempt some impartial judgment between the merits of incision and those of aspiration. 1 The aspiration of an abscess can be performed single handed without skilled assistance. The anesthetic employed is a local one, there is no wound to be dressed afterward and the cooperation of a nurse becomes unnecessary. Scarring is reduced to a minimum, and consequently the ultimate cosmetic and functional result is of the best. Aspiration is therefore to be preferred in cases of suppuration occurring in the nonlactating breast and in cases in which, during lactation, the abscess is relatively localized and confined to one lobe. 2 With the large abscess and neglected breast, incision immediately relieves an already prolonged toxemia and drains a large cavity more satisfactorily than can aspiration. 3 With the diffuse, cellulitic type of infection the prognosis is poor, however the condition is treated. Incision is probably to be preferred, in that by this means the local condition can be explored thoroughly with the finger and infected areas broken down into one large abscess cavity. 4 The author advises aspiration if there is any doubt as to the treatment necessary in any particular case. In any case incision can always be resorted to with failure to settle after several aspirations, and only time is lost.

## British Medical Journal, London

1 45 94 (Jan 11) 1936

- Treatment of Pneumonia W H Wynn—p 45  
Some Notes on Diagnosis of Bone Tumors H R Sear—p 49  
Physiotherapy in Treatment of Injuries in General and Orthopedic Practice E B M Vance—p 53  
Physiotherapy in Treatment of Injuries in Orthopedic Practice S A Malkin—p 57  
\*Potassium Permanganate Poisoning S G Willmott and M Freeman—p 58

**Potassium Permanganate Poisoning**—Willmott and Freeman point out that although potassium permanganate is one of the safest disinfectants when used in proper strength dilute solutions may irritate the stomach, and concentrate solutions may even induce gastroenteritis. Abortion has resulted during early pregnancy, following a vaginal injection of a strong solution of permanganate. The toxic effects of potassium salts on the heart muscle and the central nervous system have been ascribed by pharmacologists to the potassium ion, and this would seem to be the case with potassium permanganate. The fatal dose is not known, but 20 Gm has proved fatal when injected through the urethral canal. Consideration of its many uses emphasizes the necessity for its application in the correct dilution for the particular purpose.

1 95 142 (Jan 18) 1936

- \*Incidence of Pleural Effusion in Artificial Pneumothorax with Especial Reference to Medical Treatment D B Rosenthal—p 95  
Inapparent Virus Infections with Especial Reference to Australia Examples F M Burnet—p 99  
Heart Disease Complicating Pregnancy H C E Donovan—p 104  
Epidemic Streptococcal Adenitis R Miller—p 105  
Corneal Grafting (Keratoplasty) Some Modifications in Technique H B Stallard—p 106  
\*Aspirin Poisoning A V Neale—p 109

**Incidence of Pleural Effusion in Artificial Pneumothorax**—Rosenthal advances the thesis that trauma to the pleura in one way or another, is the main provocative cause of pleural effusion in artificial pneumothorax. A cursory examination of the literature shows that there exists a great variety

tion (from 5 to 70.38 per cent) in opinion regarding the frequency of pleural effusion complicating artificial pneumothorax. The discrepancy is partly due to the deliberate exclusion from their figures by some observers of those cases in which only a small effusion was observed. The indication is that the proportion of affected cases averages about one half, but until some more careful standardization of results is attempted any accurate forecast will be impossible. The incidence of empyema appears to vary from one in eight to one in four of cases in which fluid has developed, that is, from 5 to 10 per cent of cases in which artificial pneumothorax has been established. Of the author's fifty-four patients who received artificial pneumothorax therapy for the treatment of pulmonary tuberculosis, forty-one, or 76 per cent, developed effusion. If those are excluded in which only a small "puddle" of fluid formed, filling the costophrenic angle, the number of effusions was twenty-three, or 43 per cent. He concludes that the occurrence of pleural effusion in artificial pneumothorax is due to the combination of the factors of trauma to the pleura and infection, which may occur separately or together. It is supposed that small effusions are due only to trauma and are "reactionary," that larger effusions are due to trauma accompanied by infection, and that a relatively small proportion of effusions are due to tuberculous pleurisy. No medicinal treatment should be given. There should be a careful selection of cases for artificial pneumothorax. Care in refills should be taken when artificial pneumothorax is established, regular screening being regarded as essential. Positive pressures, or attempts to "compress" the lung should be avoided. Artificial pneumothorax should be abandoned if collapse is unsatisfactory before complications occur. When effusion is present there is no medicinal treatment of proved value. The use of calcium has again been invoked. If the quantity of fluid is small and not disturbing the patient, refills should be continued with careful observation, and there should be occasional aspiration of a small quantity of fluid to note possible change in character. If a large effusion is present one should aspirate it and replace it with air as infrequently as necessary. If collapse is poor, artificial pneumothorax should be abandoned in favor of other surgical measures. If the fluid does not constantly reaccumulate and collapse is good, refills should be continued as required. If the fluid is or becomes purulent, the treatment is surgical.

**Acetylsalicylic Acid Poisoning**—Neale points out that the onset of recognizable symptoms of acetylsalicylic acid poisoning is usually delayed for a few hours, this interval probably bearing direct relation to the rate of absorption of the drug. Although gastro-intestinal irritation with associated vomiting may occur, the leading clinical disturbance is connected with the nervous system and, in the untreated case, reaches its peak in the course of twelve hours or more when dissolution may take place as a result of profound cerebral depression. Progressive diminution of function can be traced from the higher to the lower nerve centers. Disturbance of heat regulation occurs, and profuse sweating may be regarded as an important clinical sign in the diagnosis. The type of respiration seems to vary in different cases, and typical 'acidosis' breathing is not invariably seen. The toxic effects of acetylsalicylic acid are potentiated by associated dehydration, which is likely to reach a major degree as a result of the respiratory changes, the very considerable perspiration and the prolonged effects of the drug. Auditory and vestibular disturbances are conspicuous in some cases. Reference to the patient's mental state, the presence of severe perspiration and of respiratory changes, and examination of the urine for salicylic acid should enable the diagnosis to be made. A period of several hours usually elapses before dangerous cerebral phenomena arise. Acceleration of the latter signs may occur in a person debilitated by previous chronic disease. The dangerous dose of acetylsalicylic acid varies from 400 to 500 grains (26 to 32.5 Gm.), but, in the light of more recent observation on the beneficial results of treatment, a lethal effect may be avoided even when more than 500 grains is ingested. The visceral action of the drug is considerably intensified by the associated dehydration and it is therefore imperative to combat the depletion of tissue fluids and especially to encourage and retain adequate renal secretion. If enteral fluid cannot be received the continuous intravenous drip method (dextrose-saline solution) should be used. Excretion of the acid

occurs in the sweat and the urine. The cerebrospinal fluid contains the drug in considerable amounts, and lumbar puncture undoubtedly played a leading part in the recovery of two patients. No such treatment, however, was carried out in the four fatal cases. It seems reasonable to believe that, even when symptoms and signs in this form of poisoning have reached an advanced stage, the combined therapeutic effect of the introduction of fluid to the body and the simultaneous aspiration of the cerebrospinal fluid will be a means of saving an otherwise hopeless situation.

### Journal of Anatomy, London

70 203 322 (Jan.) 1936

- Topography and Homologies of Hypothalamic Nuclei in Man W E L Clark—p 203  
Observations on Blood Supply and Innervation of Aortic Paraganglion of Cat J F Nonidez—p 215  
Sympathetic and Parasympathetic Nerves in Orbit of Cat K Christensen—p 225  
Microscopic Investigation of Innervation of the Tooth and Its Surroundings H Berkelbach van der Sprenkel—p 233  
Investigations on Pars Intermedia of Hypophysis in Anthropoid Apes and Man A Plaut—p 242  
Purkinje Conduction Network in Myocardium of Mammalian Ventricles D I Abramson and S Margolin—p 250  
Development of Tooth Germs in Vitro S Glasstone—p 260  
Staining of Lipoid Granules in Leukocytes P Bacsich—p 267  
Showing Chondro Epitrochlearis Muscle Case R R Fitzgerald—p 273  
Morphology of Last Thoracic Transverse Process A J E Case—p 275  
Method for Orientation of Reconstruction Models W A Fell—p 278  
Appendix Vermiformis Duplex A J E Cave—p 283  
Comparison of Laterosensory Lines Snout and Cranial Roofing Bones of Stegocephali with Those in Fishes E P Allis Jr—p 293

### Journal of Physiology, London

86 1 116 (Jan 15) 1936

- Question of Utilization of Amino Acids and Fat by Mammalian Heart E W H Cruickshank and G S McClure—p 1  
Intensity Discrimination and Its Relation to Adaptation of the Eye S Hecht—p 15  
Further Observations on Secretion by Submaxillary Gland of Cat Following Sympathetic Stimulation J Secker—p 22  
Heat Production of Cat's Nerve L Bugnard—p 29  
Effect of Salivary Activity on Composition of Bovine Blood Janet H Blackwood and G M Wisbart—p 37  
Insulin and the Thyroidectomized Rabbit M W Goldblatt—p 46  
\*The Sherrington Phenomenon Edith Bulbring and J H Burn—p 61  
Oxygen Dissociation Curves and Osmotic Pressures of Hemoglobins of Different Species E F McCarthy—p 77  
\*Vasoconstriction Following Deep Inspiration B Bolton E A Carmichael and G Sturup—p 83  
Secretagogue and Depressor Substances in Saliva and Pancreatic Juice J A Guimaraes—p 95  
Effect of Antithyrotropic Serum on Thyroid Gland of Guinea Pigs Treated with Thyrotropic Hormone E F Scowen and A W Spence—p 109

**The Sherrington Phenomenon**—Bulbring and Burn observed that after degeneration of the motor nerve supply a contracture of the gastrocnemius muscle of the dog and the cat can be obtained by stimulation of the lumbar sympathetic chain. Thus the Sherrington phenomenon is due to the stimulation of the sympathetic fibers in the sciatic trunk. The contracture that occurs when the chain is stimulated is much more readily seen in dogs than in cats, since the cholinergic dilator fibers are much more numerous in dogs than in cats, the authors' evidence supports the view that the contracture is due to the liberation of acetylcholine from the endings of the sympathetic vasodilator fibers. The denervated muscle of the leg responds to an injection of epinephrine by a slow prolonged contracture, though this is not always seen unless ergotoxine is injected previously. Stimulation of the sympathetic chain liberates epinephrine (or sympathin) as well as acetylcholine. The liberated epinephrine reduces the rise of tension in the muscle caused by acetylcholine but it also causes a second late rise of tension. The reduction of tension is well seen after phosostigmine when the prolonged effect of acetylcholine is broken by a period of reduced tension into two phases. The rise of tension caused by the liberated epinephrine is readily seen after ergotoxine, as a second rise following the rise due to acetylcholine.

**Vasoconstriction Following Deep Inspiration**—During the study of vasomotor reflexes in the limbs of man by means of plethysmographic records, Bolton and his associates encountered a reflex associated with respiration. In a series of experi-

ments on more than twenty healthy young female and male adults it was observed that a diminution in volume of the digits was recorded without any known stimulus having been given to the subject. It was found that this occurred immediately following a sigh. This diminution in volume took place in the digits of all four limbs synchronously in from two to three seconds after the commencement of the sigh. The alteration in volume so described is entirely different from, and of larger amplitude than, the changes seen during normal respiration. An exactly similar diminution in volume of the digit was obtained on requesting the subject, either verbally or by a signal to take a voluntary deep breath imitative of a sigh. The time relation to the respiratory changes was in every way similar to that obtained following a sigh. By utilizing the imitative sigh or voluntary deep breath, the mechanism of the diminution in volume was further investigated. In one subject in whom the right brachial plexus was completely torn across eighteen months previously, no diminution in volume occurred in the digits of the denervated limb following a deep breath although it still occurred as in a normal in the digits of the other limbs. The diminution in volume of a digit is therefore dependent on the integrity of peripheral nervous pathways. In two subjects in whom the stellate ganglion had been removed by operative procedure the digit of the sympathetomized limb did not show any evidence of diminution in volume on deep breathing. The alteration in volume was encountered in the other three limbs. Similarly in a subject with the lumbar sympathetic ganglions removed no response was obtained from the digits of that limb, although the digits of the other limbs reacted normally. It thus appears that the diminution in volume of a digit associated with deep breathing is dependent on the integrity of the peripheral sympathetic system. The experiments also rule out the possibility of movement of the digit within the container being the cause of the recorded volume diminution.

### Lancet, London

1 127 178 (Jan 18) 1936

- \*Diabetes Mellitus Its Differentiation into Insulin Sensitive and Insulin Insensitive Types H P Himsworth—p 127
- Carcinoma of Esophagus Question of Its Treatment by Surgery G G Turner—p 130
- Embryologic Interpretation of Changes Induced by Estrogens in the Male Reproductive Tract S Zuckerman—p 135
- Treatment of Carcinoma of Colon H H Rayner—p 136
- Production of Neurotropic Strain of Rift Valley Fever Virus R D Mackenzie and G M Findlay—p 140
- Operation for Hypospadias D Browne—p 141
- Pneumococcal Meningitis Following Tonsillectomy and Terminating in Recovery S E Harris and H A Yenikomshian—p 143
- \*Streptococcal Septicemia Treated with Whole Blood Injections J A Hendry and G J Griffiths—p 145
- Grooved Aluminum versus Wooden Splints A P Bertwistle—p 146

**Diabetes Mellitus**—Himsworth thinks it probable that in cases of insulin-sensitive diabetes mellitus the cause of the disease is deficiency of insulin, while in insulin insensitive cases the cause of the disease is not lack of insulin but the restriction of an unknown sensitizing factor. Work on healthy men and animals demonstrated the existence of a factor rendering the body sensitive to insulin. When more carbohydrate is given to a healthy subject the body reacts by rendering itself more sensitive to insulin. When more carbohydrate is given to an insulin-sensitive diabetic person the insulin requirement does not increase and glycosuria does not appear. This apparent increase in efficiency of the injected insulin can be explained satisfactorily on the basis that these patients react to the increased amount of dietary carbohydrate by becoming more sensitive to the injected insulin. But in the case of the insulin-insensitive diabetic patient increased intake of carbohydrate results in glycosuria and consequent increased insulin requirement. Thus, these patients are abnormal in being unable to react to increase in dietary carbohydrate by increase in their sensitivity to insulin. It appears justifiable therefore to regard the insulin-insensitive type of diabetes as being due to lack of that same unknown factor which in the normal subject produces sensitivity to insulin. The author suggests that this insulin-sensitizing factor is an activator of insulin, but as yet there is no incontrovertible evidence whether the unknown is a factor in the sense of being a definite substance or a condition of the tissues in general that facilitates the action of insulin.

However, the nature of the unknown "insulin sensitizing factor" must be such that it is intimately concerned with the action of insulin and that its restriction will result in rendering a proportionate amount of the available insulin powerless. For distinguishing these two types of diabetes mellitus the patient receives no food or insulin after supper the previous evening, and the test is carried out next morning. Blood sugar estimations are performed on capillary blood. Three resting samples are taken. The patient is given the appropriate dose of insulin intravenously and immediately afterward the appropriate dose of dextrose orally. A blood sample is taken five minutes after the insulin injection and the next at ten minutes, subsequent samples are taken at intervals of ten minutes until the hour is reached, and then two more samples at intervals of fifteen minutes. The test is thus completed in ninety minutes. The author allowed 30 Gm of dextrose and 5 units of insulin to each square meter of body surface. The test must not be carried out if the patient shows signs of nausea or faintness. In these cases absorption from the stomach is delayed and a fallacious result obtained. If it is desired to compare a series of curves, the patients must all be receiving diets containing approximately the same amount of carbohydrate, as the insulin sensitivity of a normal subject is determined by the amount of carbohydrate utilized. Conditions of exercise will very probably affect the test. In the insulin-insensitive patient the insulin has little effect, while in the insulin-sensitive patient not only is the hyperglycemia suppressed but an actual depression of the blood sugar level is produced.

**Streptococcal Septicemia Treated with Injections of Whole Blood**—Hendry and Griffiths adopted the use of whole blood, as suggested by Lazarus-Barlow and Chamberlain, instead of streptococcus antiserum in the treatment of a patient suffering from streptococcal septicemia who was seriously ill and whom it seemed inadvisable to remove to the hospital. The procedure used was the injection of 15 cc of whole blood taken from the patient's husband and its immediate injection into the thigh. No apparatus was required other than sterile needles and syringe, nor was blood grouping necessary. Although there was a slight fall in temperature after each injection of streptococcus antitoxin there was little improvement clinically. This may have been due to the absence from the antiserum of the specific antibody corresponding to the bacterium infecting the patient. Each injection of whole blood from the donor immunized with an autogenous vaccine caused profound improvement, and the injections seemed to precipitate the formation of localizing abscesses in the red patches that appeared at the onset of the illness. As the antihemolysin titer of the serum increased only from 75 to 250 units, it is doubtful whether any improvement can be attributed to the antihemolysin. The possibility of complement cannot be neglected, for it has been found by Cadham that in acute infection the complement titer may be low during the acute phase of the disease. The introduction of complement by the way of whole blood from a healthy person may in this case have done much to combat the infecting organism.

### Journal of Oriental Medicine, Dairen, South Manchuria

24 1 14 (Jan) 1936

- Colorimetric Quantitative Determination of Morphine and Heroin
- Part I Quantitative Determination of Morphine R Ito—p 1
- Id Part II Quantitative Determination of Heroin R Ito—p 7
- Id Part III Absorption of Morphine and Heroin by Charcoal Ado R Ito—p 3
- Observations on Discharge of Sweat from Single Sweat Gland K Takahara—p 4
- External Injuries Due to Ice Skating T Nakajima and T Ohnuma—p 5
- Observations on Recent Mortality Statistics of Japanese in Manchuria
- Part III S Kawahito—p 6
- Pigment Affinity of Hay Bacilli and Bacilli Anthracis Report III
- Studies on Vital Staining of Bacteria K Fukumoto—p 8
- Lungs and Syphilis U Takei—p 10
- Studies on Metabolism in Endemic Goiter of Jebel Digestion and Resorption of Millet U Takei—p 11
- Id Digestion and Resorption of Maize U Takei—p 12
- Statistical Comparison of Japanese and Chinese New Born to Regard to Length and Weight of Body and Circumference of Head Shoulders and Chest K Nishida—p 13
- New Anthelmintic Raigan (Chinese Drug) in Teniasis Preliminary Report S Ryo—p 14

## Archives Franco-Belges de Chirurgie, Brussels

35 192 (Jan.) 1936

- Endometriosis Anatomoclinical Study E Delannoy Demarez and Bedrine—p 1  
Treatment of Scoliosis by Galeazzi Method Blankoff—p 21  
\*Extirpation of Ganglions in Cancer of Clitoris E Hausen—p 37  
Sacrocoxygeal Teratoma R Straetmans—p 55

## Extirpation of Ganglions in Cancer of Clitoris—

Hausen describes a case of primary malignant tumor of the clitoris. The patient was 58 years of age. Primary cancer of the clitoris represents about 4 per cent of the vulvar cancers. It is more malignant than neoplasms of the vulva because of the richness of the blood and lymphatic vascular systems of this region, which favors metastases to the inguinal and pelvic ganglions. The clinical determination of ganglion involvement is practically impossible, histologic examination alone can determine this point. It is for this reason that an early surgical intervention is necessary. Surgery should involve wide amputation with complete and methodical curettage of the ganglions bilaterally. If circumstances permit, it is wise to complete the treatment by postoperative roentgen therapy.

## Presse Medicale, Paris

44 129 144 (Jan 22) 1936

- Electrical Activity of Human Brain E D Adrian—p 129  
\*Subcardiac Diverticula of Stomach A Cain and G Guttmann—p 131

## Subcardiac Diverticula of Stomach—Cain and Guttmann

limit their discussion to diverticula of the stomach that are strictly juxtacardiac. They consider them to be primary congenital noninflammatory formations and wholly different from those developing in the course of ulcer or neoplasm or the pseudodiverticula created by diaphragmatic herniation of the stomach. The subcardiac diverticula are characterized by the constancy of site of their insertion. They are fixed under the heart on the posterior surface of the lesser curvature. The orifice of the canal opens in the stomach at a distance of from 0.5 to 4 cm from the cardio-esophageal junction. Their size and mobility vary. They are partial or total depending on whether they represent an evagination of the mucosa through the muscular layer or whether they comprise all the coats the muscular being reduced to a thin layer. From the clinical standpoint the majority are symptomless. Occasionally postprandial sensations may call attention to the stomach. The roentgenologic appearance, with the patient in different positions, appears as a pure image without cardio-esophageal reaction or modification of gastric function. Complications are few and mechanical or inflammatory ones have not been noted. Neoplastic transformation is known however. The differential diagnosis of this condition is impossible on clinical grounds. The principal roentgenologic problems are transdiaphragmatic herniations of the stomach, epiphrenic esophageal diverticula and some subdiaphragmatic lesions, such as air in the colon, perigastritis, and ulcer or cancer of the superior pole of the stomach. There are three principal theories of pathogenesis: congenital reflex and mechanical. Surgical treatment is not indicated unless necessary for concomitant disorders. Administration of bismuth subnitrate is usually followed by swift subsidence of the unpleasant symptoms.

## Polichinico, Rome

43 4996 (Feb 15) 1936 Surgical Section

- Anatomopathologic Alterations of Appendices Removed Sometime After Simple Incision of Appendicular Abscess E L Beluffi—p 49  
Behavior of Acidity of Gastric Secretions Following Operations for Gastric and Duodenal Ulcers B Paggi—p 65  
Autoplastic Transplantations in Covering Loss of Dura Mater Experiments G Selvaggi—p 76

## Acidity of Gastric Secretion After Operations for Gastric Ulcers—Paggi

made determinations of the gastric secretion following either gastro-enterostomy or gastric resection in duodenal and gastric ulcers. The determinations were made before and after performance of the operation in the latter case at short and long intervals after it. The author says that the gastric hydrochloric and total acidities diminish much more after gastric resection than after gastro-enterostomy. The intensity in the lowering of gastric acidity following gastric resection is independent of the type (duodenal gastric or

jejunal) of the ulcer as well as of the technic (first or second Billroth operations) used in reestablishing the continuity of the digestive tract. The lowering of the gastric acidity is due to modifications of the gastric secretion produced by resection and not to neutralization of the secretion by the presence of either bile or alkaline fluids, backing up through the neostomy. The gastric hypo-acidity is maintained for a long time after resection and sometimes increases as time elapses.

## Riforma Medica, Naples

52 243 276 (Feb 22) 1936

- \*Metabolism of Oxalic Acid in Relation to Liver Experiments G Pennetti—p 243  
Action of Alcoholic Extract from Urine on Adrenals Its Use in Biologic Diagnosis of Cancer P Tagariello—p 246  
Familial Hereditary Angiomatosis with Recurrent Hemorrhages of Goldstein's Type H J Goldstein—p 256

## Metabolism of Oxalic Acid in Relation to the Liver

—Pennetti states that there is a relation between the content of oxalic acid and oxalates in the blood and the functions of the liver. Hyperoxalemia during fasting is frequent in patients suffering from liver diseases. An oral dose of 25 Gm of sodium oxalate, given during fasting, does not modify oxalemia in normal persons, while it causes either appearance or increase of hyperoxalemia in patients with liver diseases. The author determined the oxalemia in fasting rabbits and dogs in which the renal functions were normal. He found that in normal rabbits fasting oxalemia does not increase or slightly decreases after an intravenous injection of a 3 per cent solution of sodium oxalate, in the proportion of 0.03 Gm of sodium oxalate per kilogram of the weight of the animal. Oxalemia greatly increases after injury of the liver (caused by intoxication of the animal, by hydrazine sulfate or by ligation of the common bile duct) or exclusion of the organ (caused by ligation of the hepatic duct), whether or not the animals are given the sodium oxalate test. From a clinical point of view, the results prove that the liver is not the only organ involved in the manufacture of oxalic acid and its oxalates and that fasting hyperoxalemia of patients with liver disease is a metabolic disturbance due to insufficiency of the liver and not to retention of oxalic acid and its oxalates in the blood because of renal insufficiency.

## Semana Medica, Buenos Aires

43 561 640 (Feb 20) 1936 Partial Index

- Arciform Incision of Lower Segment of Uterus in Abdominal Cesarean Section J A Beruti and J Leon—p 561  
\*Stelleotomy in Traumatic Paralysis of Facial Nerve J A Caeiro—p 572  
Biliary Peritonitis in Tuberculosis Case R A Izzo O Aguilar A Nijensohn and H Aguilar—p 580  
Chronic Total Volvulus of Small Intestine and Ascending Cecocolic Segment Case M M Brea and R Dissen—p 586  
\*Pneumococcal Peritonitis in Infants Case I Diaz Bobillo—p 592

**Removal of Stellate Ganglion—Caeiro** says that the removal of the upper cervical ganglion (Leriche's operation) has been considered an operation that offers satisfactory results in the treatment of traumatic paralysis of the facial nerve. The operation results in the appearance of voluntary contraction of the orbicular muscle increased turgor of the facial structures of the paralyzed side and correction of the facial asymmetry. The appearance of the Bernard Horner syndrome is a new factor for correction of facial paralysis. Several theories, such as the existence of a crossed innervation of the upper facial nerve, the suppression of the muscular tonus and the production of a permanent vasodilatation, were given as an explanation for the effects of upper cervical sympathectomy. Nevertheless the author considers upper cervical sympathectomy a segmentary operation with transient results after which the patient may return to the same condition in which he was before performance of the operation. The author reports satisfactory results in a case of traumatic paralysis of the facial nerve, from resection of the stellate ganglion, which results in complete elimination of the sympathetic innervation of half of the head and neck. In his case the satisfactory results are still lasting eleven months after performance of the operation.

**Pneumococcal Peritonitis in Infants—Diaz Bobillo** states that pneumococcal peritonitis is rare in infants. He reports seven cases in infants from 6 months to 2 years of age. The condition was primary in two cases secondary to other locali-



zations of the pneumococcus, such as pneumonia, pleurisy and pericarditis, in three cases, and associated with pleuropulmonary pneumococcal infection in two cases. The diagnosis of pneumococcal peritonitis is difficult. It has to be differentiated from dyspeptic coma, appendicitis, typhoid and tuberculous peritonitis. The performance of abdominal puncture for diagnosis is dangerous. As a rule the infection is associated with pleural, pulmonary, meningeal and pericardial pneumococcal infections and the prognosis is fatal in nearly all cases. The treatment includes infra umbilical laparotomy under procaine hydrochloride anesthesia, followed by drainage. Before and after the operation the administration of large doses of antipneumococcus serum intramuscularly, cardiac tonics and stimulants is advisable. The type of the disease in all the cases reported by the author was grave and the evolution fatal.

### Beiträge zur klinischen Chirurgie, Berlin

163 177 336 (March 4) 1936 Partial Index

- Prognathism and Crooked Bite Caused by Osteoma of Joint of Lower Jaw F Oehlecker—p 177  
Attempts at Operative Treatment of Diabetes T Hutt—p 206  
\*Clinical and Experimental Contribution to Talma's Operation O Henningsen—p 229  
Strangulation of Intestine in Mesenteric and Mesocolic Openings F Landois—p 241

**Talma's Operation**—Henningsen reports seventeen cases of ascites in which the Talma operation was performed. Six of the patients who had icterus and an advanced cholemic state died within a few weeks after the operation. In one case presenting icterus for a short time the ascites did not recur for one year after the operation. In three cases without icterus but with a long standing history, temporary relief was obtained. No results were obtained in two cases of ascites and anasarca of cardiac origin. Fairly good results were obtained in five cases which presented no icterus and a relatively short history and in which few abdominal punctures were made at long intervals. The author concludes that the Talma operation is indicated only in cases in which ascites is due to obliteration of the central veins of the portal circulation. The indications are further influenced by the duration of the disease and the functional condition of the liver. The disease progresses rapidly after the appearance of ascites or gastric hemorrhages. The operation should not be long delayed after the appearance of these symptoms. Appearance of icterus, acholia, urobilinuria and pigmentation of the skin points toward a bad prognosis. The author cites experiments to show that rats did not survive ligation of the portal vein when their livers were primarily impaired by phosphorus feeding. Gastric hemorrhage from an esophageal varix constitutes an urgent indication for operation. Clinical experience demonstrated that collateral circulation in such cases can be improved by the Talma operation and a fatal hemorrhage prevented. The author feels that the operation should be performed more frequently since it does little damage, can be carried out under local anesthesia and in properly selected cases offers amelioration of at least one symptom, that of ascites in an otherwise incurable disease.

### Chirurg, Berlin

8 193 236 (March 15) 1936

- War Surgery H Schum—p 193  
Prevention of Thirst After Anesthesia V Schroder—p 201  
\*Results of Operative Intervention for Perforation of Gastric Duodenal Ulceration G Haussler—p 206  
Surgical Roentgenology R Janker—p 214

**Operations for Perforation of Gastric Ulceration**—Haussler analyzes the results of 151 operations for perforation of gastric duodenal ulceration performed in the clinic of Prof W Keppler of Essen from 1920 to 1935. There were six women in the group (4 per cent). Operation was performed in 70 per cent of the cases within the first six hours after the onset of symptoms and in 165 per cent within the first twelve hours. The total mortality rate was 26.5 per cent. The mortality rate in the group in which operation was performed within the first six hours was 15.4 per cent and that of the first twelve hours, 17.6. In the group in which operation was performed after twelve hours it was 69 per cent. A follow-up study was made in eighty-nine cases and an x-ray study in seventy-three. In twenty-nine of the patients there developed

an incisional hernia and in thirteen a mild distasis of the rectus muscle. The mortality in a group of twenty-eight patients in whom suture of the ulcer alone was practiced amounted to 17.1 per cent. In a group of eighty-three patients in whom suture of the perforation and a gastro-enterostomy was practiced the mortality amounted to 18.1 per cent, and in a group of twenty-two having partial gastric resections the mortality was 22.7 per cent. Only one fifth of the patients in whom a gastro-enterostomy was performed were free from complaints. In eight there developed a peptic jejunal ulcer. Of these, one died of a profuse hemorrhage and the remaining seven were submitted to the operation of partial gastric resection. In the group in which suture of the perforation was performed, half the number were free from symptoms. Pyloric stenosis occurred in five. The results in the group in which partial gastric resection was practiced were better, more than half of these were symptom free and the remaining complained of mild symptoms on ingestion of a heavy meal. The patients who were not working were more likely to have complaints than those who returned to work. The authors have abandoned in the late years the addition of gastro-enterostomy because of the poor results. They consider simple suture of the perforation the operation of choice and reserve the later operation of partial gastric resection for cases exhibiting more serious complications or symptoms.

### Klinische Wochenschrift, Berlin

15 257 288 (Feb 22) 1936 Partial Index

- Growth and Aging in Circulation K Wezler and A Boger—p 257  
Chemistry and Biology of Pure Corpus Luteum Hormone W Hohlfeld and J Schmidt—p 265  
\*Creatinuria in Cardiac Decompensation E Kindler—p 267  
Pulmonary Cancer and Serologic Cancer Diagnosis S Nakagawa and T Takasugi—p 269  
\*Audible Auricular Sound in Auricular Flutter H Ludwig and A Bener—p 271

**Creatinuria in Cardiac Decompensation**—Kindler shows that considerable changes take place in the metabolism of patients with cardiac decompensation. He found creatine in the urine in all cases of severe cardiac insufficiency and also observed that it disappears again as the circulatory conditions improve. This creatinuria is the result of a decomposition of glycogen, which in turn can be traced to an inadequate oxygen supply of the skeletal musculature during the cardiac decompensation.

**Audible Auricular Sound in Auricular Flutter**—Ludwig and Bener assert that no sound corresponding to the auricular action is audible in the case of normal cardiac activity. However, in many cases of atrioventricular block the auricular action is accompanied by audible sounds and some cases of gallop rhythm of mitral stenosis particularly the presystolic gallop rhythm, may likewise be due to the fact that the auricular action becomes audible. That the rapid action of auricular flutter may become audible was previously unknown. The case observed by the authors throws light on the origin of the auricular sound. A man, aged 40, had cardiac insufficiency, mitral and aortic insufficiency, auricular flutter, complete atrioventricular block, disordered intraventricular conduction and stasis cirrhosis. In addition to a loud first sound, a loud systolic murmur, a clapping second sound and a low diastolic murmur, a dry, somewhat woody sound, of high frequency and regular rhythm could be heard. The maximum audibility was on the left parasternal line in the second and third intercostal spaces. In the median and downward direction, the intensity of this sound decreased. Immediately after the second sound the rhythm was weak, but in the course of the ventricular diastole it became constantly louder. In the case of simultaneous registration of the electrocardiogram and of the cardiac sounds there appeared between the second and first cardiac sounds, that is, during the ventricular diastole, regular oscillations, the frequency of which corresponds exactly to that of the auricular action. The authors were unable to detect this sound in other cases of auricular flutter. A mitral insufficiency exists, but muscular insufficiency may play a part here. It is possible that the aortic insufficiency with its increased rest quantity of blood plays a part. The increase in the intensity of the sound during the ventricular diastole, that is, during the further increase of the ventricular filling, favors this possi-



bility At any rate, this case contradicts the origination of the auricular sound in the ventricle, as has been suggested by Gallavardin and Duchosal. The authors ascribe the development of the auricular sound to oscillations of the auricular wall, which, as Weber suggested, are caused by the sudden transition from the flaccid diastolic to the taut systolic condition or, as suggested by Edens, by the forced position of one of the valves in the course of the auricular systole

### Medizinische Klinik, Berlin

32 273 308 (Feb 28) 1936 Partial Index

- Disorders of Accessory Sinuses in Children H Leicher—p 273  
\*Therapy of Myocardial Impairments K Gotsch—p 275  
Bathing of Wounds in Surgery and Its Scientific Foundation H Hochmuth—p 280  
Functional Diagnosis of Dyshasia Intermittens (Intermittent Claudication) F Kisch—p 283  
Why Is Theory of Spontaneous Tear of Meniscus Untenable? F Linde—p 286  
Method for Quantitative Determination of Pepsin in Commercial Products H Eschenbrenner—p 288

**Treatment of Myocardial Impairment**—Gotsch first discusses the group of myocardial defects most often caused by failure of the regulation of the coronary blood perfusion. In these disorders one must overcome the disturbance in the blood perfusion and reduce the blood requirements. The blood perfusion is improved by nitrites and by the intravenous injection of concentrated solutions of dextrose. These measures, together with physical and mental rest, often counteract the coronary insufficiency. However, if the nitrites fail and the enforcement of rest proves difficult, strophanthin therapy may eventually be resorted to. For the treatment of the myocardial infarct that may develop in the course of coronary thrombosis the author recommends complete rest, morphine during the attack and hot baths for the hands. However, if signs of cardiac insufficiency appear, strophanthin may be used. The doses should be small (from 0.1 to 0.2 mg. if necessary repeated on the same day). The injection must be made slowly and should be combined with a 40 per cent solution of dextrose, eventually with a small addition of theophylline ethylenediamine. After the acute attack has passed, several weeks of rest should be enforced. If the anginal attacks return, nitrites and, if necessary, strophanthin may be given. In discussing the disturbances in the cardiac rhythm which developed in the course of coronary sclerosis, the author points out that the regulation produced by quinine is usually of only short duration. This and other disadvantages of the quinine therapy have promoted the wider use of digitalis or strophanthin, which likewise counteract the undesirable circulatory effects of arrhythmia and yet do not have the unfavorable effects of quinine. The author pays attention to the Adams Stokes attacks. He shows that if possible the etiologic factors should be determined. If they are inflammatory and likely to regress within a few days, efforts should be made to reestablish the normal stimulus conduction by the administration of an isomer of ephedrine (0.05 Gm. from three to five times) and caffeine and by the treatment of the existing rheumatism or septic foci. However, if conditions exist that result in progressive impairment of the heart (coronary sclerosis), the improvement obtained by these remedies will be of only short duration, and it will be better not to aim at the reestablishment of a normal rhythm but rather to administer digitalis preparations and thereby change the temporary interruption of the conduction into a permanent one (continuous ventricular automatism). However, if the Adams-Stokes attack develops in the course of an already existing ventricular automatism the fatigued center in the ventricle must be stimulated by barium chloride and caffeine. For the treatment of paroxysmal tachycardia, quinidine is usually advised, although strophanthin is being used more and more.

**Functional Diagnosis of Intermittent Claudication**—Kisch asserts that observations in the work test indicate a relationship between angina pectoris and intermittent claudication. After calling attention to his earlier report on angina pectoris during the work test (abstracted in THE JOURNAL, Oct 5 1935, p. 1155), he points out that a defective capillarization seems to play a part in both conditions. As he had studied angina pectoris by means of a work test he now decided to

employ a work test for intermittent claudication. Whereas in angina pectoris the standard exertion of the work test consisted in sitting up from the horizontal position and resumption of the reclining position, he chose as standard exertion for intermittent claudication a maximal bending at the ankle, knee and hip joints (as far as possible with adduction of the knee to the abdominal wall), with immediately following maximal extension of these joints, while the body of the patient is in the horizontal position. This bending exercise is done thirty times a minute. The number of times this standard exertion is performed before an attack of claudication results is designated as the threshold value for the pain of claudication. The author found that this value varied considerably in different patients. If the value is rather high, it may be assumed that the capillarization defect has not progressed far or that it has been compensated to a considerable extent by the formation of collateral arteries. If the work test reveals a rather low threshold value the capillarization defect of the involved muscles is probably considerable. The increase or decrease in the threshold value indicates an improvement or an exacerbation of the disorder.

32 309 340 (March 6) 1936 Partial Index

- Significance of Acid Fast Bacilli (Pseudotubercle Bacilli) in Erroneous Diagnosis of Pulmonary Tuberculosis S Litzner—p 315  
When Is It Permissible to Declare a Mother Incapable of Lactation? K Herzmann—p 316  
\*Is Transmission to Offspring Possible in Case of Lymphogranuloma Inguinale? W Dick—p 319  
Dangers Involved in Prescription of a 50 Per Cent Stock Solution of Zinc Chloride H Brugsch—p 321  
Ectomy of Palatine Tonsils by Means of Coagulation with Short Waves V Fruhwald and L H Stueckel—p 321

**Possible Transmission to Offspring of Lymphogranuloma Inguinale**—Dick states that women with the late forms of inguinal lymphogranuloma are often sterile but occasionally give birth to mature infants. In the latter case the fate of the offspring is of interest. The author reports two cases. One concerns a woman with a positive Frei reaction and rectal stricture who became pregnant and gave birth to a normally developed infant, who had a positive reaction when subjected to a Frei test two weeks after birth. Moreover, at five months the test was again positive. The second case cited by the author concerns a girl, aged 14, the daughter of a woman who had died following an attempt to dilate a rectal stricture, the latter being doubtless the result of an inguinal lymphogranuloma. The daughter had complained of rectal disturbances for a number of years, Frei's test was positive, indicating that her rectal disturbances were due to inguinal lymphogranuloma. In this case three modes of transmission were possible: intra-uterine infection, infection during the process of birth and infection after birth by contact with the mother. In the nursing, however, the infection must have taken place before or during birth. The author points out that intra-uterine transmission seems likely in view of the fact that in adults the Frei test does not become positive until several weeks after the infection and that the nursing had a positive Frei test two weeks after birth.

### Munchener medizinische Wochenschrift, Munich

83 339 380 (Feb 28) 1936 Partial Index

- \*Biology of Herpes Simplex O Naegeli—p 339  
Treatment of Hypertrophy of Prostate by Transurethral Electro-Excision II Nabrath—p 348  
\*Crural Neuritis and Its Treatment with Vitamin B<sub>1</sub> E Hesse—p 356  
New Methods in Treatment of Vomiting of Pregnancy W Schmidt—p 357  
Exercise Treatment in Spondylarthritis Ankylopoietica (Bechterew) C Keiffenheim—p 358

**Biology of Herpes Simplex**—Naegeli points out that since 1920 herpes simplex has been generally regarded as an infectious disease. He admits that in view of the fact that experimental transmission of the disease is possible the infectious nature cannot be questioned since transmissibility of a disease is considered equivalent to causation by a living agent. However, he shows that if the biologic nature of herpes simplex is studied with great care many factors are discovered that do not tally with the bacterial nature of the disorder. He mentions the influence of puberty, particularly in females, the familial appearance in which constitutional factors seem to play a part,

and finally the greater incidence in women. He describes the peculiarities in its appearance and course pointing out that in the majority of cases herpes appears following some unusual external or internal happening (acute febrile infectious diseases, gastro-intestinal disturbances, incretory disturbances menstruation, trauma, physical exertion or shock). Nevertheless herpes simplex cannot be compared with the activation of other infectious diseases, for only in some of the cases does the herpes develop toward the end of the primary disease. Quite often herpes simplex signifies the onset of a disease. The precipitousness of the onset of herpes simplex is demonstrated, particularly in fever therapy with vaccines and in malaria therapy. Occasionally the herpes blisters appear during the first attack of fever, at other times not until the end of the fever therapy, and not at all always following the highest temperatures. Another peculiarity is that the herpes blisters usually reappear at the same sites (virus fixation). Regarding the problem of spontaneous contagion the author says that the literature reports no unquestionable cases of contact transmission. He calls attention to the favorable effect exerted by it on other infectious diseases and to the low mortality of pneumonia in patients who develop herpes in the course of the pneumonia and says that similar observations have been made in meningococcal meningitis in complicated female gonorrhea and in malignant diphtheria. He stresses that fever therapy of neurosyphilis is most effective in patients with herpes. Moreover, in some non-herpetic patients with neurosyphilis in whom the first fever therapy had been ineffective he obtained improvement by inoculation with herpes and subsequent activation with fever. Herpetic patients develop neurosyphilis much less often than do patients without herpes. Herpes is more frequent in women than in men, whereas the incidence of tabes and dementia paralytica is comparatively higher in men than in women. Whereas in other disorders the herpes virus seems to influence the disease as such, in the case of syphilis its antagonistic effect involves chiefly the central nervous system.

**Vitamin B<sub>1</sub> in Crural Neuritis**—Hesse observed miners with neuritis of the crural nerve which usually began with severe pains in the lumbosacral region but after several days the pains radiated into the leg. The pains differed from those of sciatica in that they were localized in the flexure of the groin and on the anterior surface of the thigh. The chief complaint is a feeling of weakness in the affected member. Complaints of pains in the knee and on the inner surface of the tibia are also quite frequent. The latter symptoms are manifestations of the irritation of the sensory branches of the crural nerve. That this disorder is especially frequent in miners is probably due to the unfavorable weather conditions that prevail in the mines. In four patients with this form of crural neuritis the author employed the antineuritic vitamin B<sub>1</sub> in addition to the usual physical and medicinal therapy. Every second day 2 cc of vitamin B<sub>1</sub> was injected into the quadriceps of the diseased member. Case reports indicate that the total number of injections varied between six and eight. There were no undesirable secondary effects such as focal reactions or increase in temperature. However the blood pressure often increased by from 10 to 20 mm of mercury. To be sure this increase was only temporary and soon subsided, nevertheless, the author thinks that in view of this increase in blood pressure it is inadvisable to employ the injections of vitamin B<sub>1</sub> in patients who have a considerable hypertension. He suggests that injections of the antineuritic vitamin B<sub>1</sub> should be used also in neuritides of different localization.

#### 83 381 422 (March 6) 1936 Partial Index

- Pepsin Pregl's Solution for Treatment of Inoperable Hypertrophy of Prostate. E. Pavr—p. 381  
Convallaria Majalis and Its Glucosides. W. Straub—p. 386  
Preparation of Combined Glucosides of Convallaria Majalis. Buttner—p. 387  
Clinical Aspects of Acromegaly. G. Holland—p. 390  
\*Congenital Bilateral Flexion Contracture of Thumb in Children. H. Regele—p. 391

**Congenital Flexion Contracture of Thumb**—Regele reproduces the pictures of the hands of two boys aged 3½ years and 8 months, respectively. The two boys had a flexion contracture of the thumb which had been noticed by the parents

soon after birth. The parents had repeatedly attempted to straighten the thumbs. Their efforts were successful but the lasting. Examination of the children disclosed that both were otherwise normal. To counteract the flexion contracture, the thumbs were straightened and an ordinary ampule file was attached to the dorsum by means of adhesive tape and left in this position for four weeks. A few days after that the extension and the flexion of the thumb could be done quite freely. Three years of subsequent observation disclosed that the improvement was permanent. The author says that nothing definite is known regarding the etiology of this defect but he thinks that some obstruction in the region of the flexion tendon and its sheath must be responsible. The suggestion that traumatic or inflammatory processes (rheumatism, gout or tuberculosis) might be a cause could not be accepted for the described cases. The bilaterality and the "congenital" appearance in the otherwise normal children seem to suggest a malformation. It may be that a prolonged intra uterine doubling of the fist may have caused a stenosis of the sheath of the tendon. The success of the treatment of prolonged fixation in extension seems to corroborate the theory of stenosis of the tendon sheath.

#### Wiener klinische Wochenschrift, Vienna

40 225 256 (Feb. 21) 1936 Partial Index

- Climatic and Heliotherapy in Surgical Tuberculosis. E. Ruppenhauer—p. 229  
Biologic Action of Reflected Ultraviolet Irradiation. W. Hausmann and W. Hauptmann—p. 232  
Apoplectic Seizure and Weather. H. Scharfetter, T. Seeger and A. Jelinek—p. 233  
\*Cytologic Blood Changes in Myoma. M. Vorlicek and Jelinek—p. 234  
Prevention of Varicose Thrombophlebitis. G. Nohl—p. 240  
\*Magnesium Sulfate Poisoning. Case. D. Roller—p. 241

**Cytologic Blood Changes in Cases of Myoma**—Vorlicek and Jelinek, summarizing his observations on the changes in the blood picture of women with myoma and comparing them with the hematologic changes in other gynecologic disturbances, concludes that the myoma as such produces in the majority of cases hematologic changes that may be regarded as specific for this type of tumor. There is an increase in the number of leukocytes and a more or less severe lymphocytosis. The author thinks that, even if from the histologic point of view myomas are benign tumors, it is better to remove them by surgery than to treat them conservatively.

**Poisoning by Magnesium Sulfate**—Roller describes the history of a woman, aged 21, who developed tetany with respiratory disturbances and vertigo following the intravenous injection of 2 cc of a 20 per cent solution of magnesium sulfate. The symptoms were not those that are typical for magnesium sulfate poisoning but were rather due to a calcium deficiency in the serum. The ionic equilibrium had become impaired. The disorder disappeared again following the intravenous injection of calcium. Intravenous injections of concentrated salt solutions should be made slowly.

#### 40 257 288 (Feb. 28) 1936 Partial Index

- Biologic Significance of Flavines. T. Wagner-Jauregg—p. 257  
Investigation of Causes in Nonsuppurating Infectious Arthritides. W. Berger—p. 262  
Serologic Diagnosis of Malignant Tumors. K. Bauer—p. 266  
Occurrence of Nonepidemic and Epidemic Encephalitis During Last Ten Years. M. Silbermann and J. Zappert—p. 268  
\*New Investigations on Antianemic Action of Intestinal Mucous Membrane. G. Fros and S. Kunos—p. 270

**Antianemic Action of Intestinal Mucous Membrane**—Eros and Kunos state that, in their opinion, hematopoietic substances are produced not only in the stomach and in the entire intestinal tract but also in other incretory organs and in all organs in which an argentaffin cell system exists similar to that of the gastro intestinal tract. This argentaffin cell system can be influenced by starvation and by various extracts. It is noteworthy that the argentaffin cell system is greatly atrophied in the gastro intestinal tract of patients who have died of pernicious anemia. It is, however, still disputed whether the intestinal juice contains an antianemic factor similar to that of the gastric juice. The authors reasoned that a more effective intestinal preparation might perhaps be produced if the intestine

hens was utilized in which the argentaffin cells had been considerably increased by starvation. Hens were chosen because their intestine has a comparatively large number of argentaffin cells. A number of different extracts were prepared and were tested on rats with Bartonella anemia. The splenectomized rats were given daily subcutaneous injections of from 0.2 to 1 cc of the extract and their erythrocyte count was taken every third day. Tabular reports of the results of these tests indicate that some of the intestinal preparations were entirely ineffective, that one preparation not only reached the efficacy of liver extract but even surpassed it in some respects. This preparation proved effective also by oral administration. In the combined administration of liver and this intestinal extract it was found that a daily dose of 0.2 cc of each was more effective than if either alone was given in a daily dose of 1 cc. The described experiments proved that the extract of the intestinal mucous membrane exerts a favorable influence on the Bartonella anemia of rats. At present clinical experiments are being conducted on human subjects. The results obtained thus far indicate that the preparations of the intestinal mucous membrane which were found efficacious in animals exert a favorable effect on the various forms of secondary anemia but that their action on pernicious anemia is inadequate.

### Zeitschrift f Geburtshilfe u Gynakologie, Stuttgart

112 125 272 (Feb 28) 1936 Partial Index

- Mucocoele and Myxoglobulosis of Vermiform Appendix and Pseudomyxoma Peritonaei R Meyer and H Rockstroh—p 125  
Results of Operation in Mesenteric Chylous Cyst C Tatzol—p 144  
Position and Configuration of Fetal Head in Pelvic Presentation O Brakemann—p 154  
New Points of View Regarding Problem of Development of Deflexion Attitudes G Jungmann—p 183  
Roentgenologie After Examinations on Women Who Have Undergone Surgical Sterilization—P Thiessen—p 233

**Mucocoele and Myxoglobulosis of Appendix**—Meyer and Rockstroh direct attention to the rarer disorders of the appendix, the knowledge of which they esteem of considerable practical importance. They report cases of total mucocoele of the vermiform appendix, cases of partial mucocoele in the distal portion of the appendix, a case of partial mucocoele in the proximal portion, a case of myxoglobulosis of the appendix, a case of pseudomyxoma of the peritoneum produced by perforation of a mucocoele in the presence of pseudomucin cystomas of both ovaries, and one case each of pseudomyxoma from the appendix and the ovary. In discussing the pathogenesis of the diverticula and of the mucocoeles of the appendix, the authors point out that the development of the mucocoele presupposes a closure of the lumen in one or several places. As the essential cause, an abnormal production of mucus is assumed. The formation of globoid bodies of mucus results in myxoglobulosis, which is a variety of mucocoele. Pseudomyxoma of the peritoneum is produced frequently by perforation of mucocoele or myxoglobulosis. It is generally denied that this rupture can result merely from the pressure of the contents and from a thinning of the wall and it is believed that inflammation, disturbances in the nutrition and necrosis of the wall are necessary factors. Pseudomyxoma of the peritoneum may be caused also by the perforation of pseudomucin cysts. The prognosis of the latter cases is usually less favorable, because larger quantities of mucus escape. In case of simultaneous existence of pseudomucin cystoma of the ovary and of mucocoele of the appendix, it is difficult to determine which of the two conditions caused pseudomyxoma of the peritoneum. In view of the fact that the majority of pseudomucin cystomas of the ovaries are regarded as endodermal teratomas it is assumed that a constitutional factor is involved in the simultaneous development of pseudomucin cystoma of the ovary and mucocoele of the appendix.

**Development of Deflexion Attitudes**—Jungmann maintains that the mechanism of engagement is determined by the shape of the fetal cranium. The manner of engagement determines whether delivery will take place in normal flexion or in one of the attitudes of deflexion. For this reason the author thinks that the former opinions regarding the origination of these attitudes have to be revised. Studies in ten cases convinced him that the severe deflexions of the head occur in cases in which the cranium is longer particularly in the region of the

occiput. He thinks that deflexion develops because the greater mass of the occiput encounters a greater resistance than the sinciput and thus is prevented from going deeper.

### Zentralblatt fur Gynakologie, Leipzig

60 497 544 (Feb 29) 1936 Partial Index

- Technic of Tubal Sterilization W Sigwart—p 498  
Study on Physiology in Milk Formation K J An elmino and F Hoffmann—p 501  
Metabolic Studies During Delivery J Botella Llusia—p 507  
\*Prophylactic Autohemotherapy for Reduction of Postoperative Pulmonary Complications G Karpati—p 516

**Prophylactic Autohemotherapy for Reduction of Postoperative Pulmonary Complications**—Karpati mentions several investigators who have maintained that autohemotherapy surpasses in efficacy all methods ordinarily employed for the prevention of postoperative pulmonary complications. The favorable results obtained by those authors and the realization that theoretically autohemotherapy represents a stimulation as well as an immunologic treatment induced Karpati to try prophylactic autohemotherapy in gynecologic operations done under ether anesthesia. By means of a record syringe that contains 2 cc of a 2 per cent solution of sodium citrate he withdraws 10 cc of blood from the cubital vein of the patient and injects it at once into the extensor musculature of the thigh. With this method he was able to avoid all complications that have been observed after autohemotherapy such as hematuria, hemoglobinuria, chills, nausea, vomiting, headaches, scarlatiniform exanthems and even infiltrations at the site of injection. In order to evaluate the efficacy of autohemotherapy in preventing postoperative pulmonary complications, the author compares the postoperative course of cases in which autohemotherapy was used with those in which it was not used. Summarizing his observations, he states that autohemotherapy did not prevent all postoperative pulmonary complications, nevertheless, the hopes that had been placed in this treatment were realized in that the incidence of the postoperative pulmonary complications as well as the number of fatalities from this cause could be reduced to less than half. However, a single injection of the patient's own blood did not reduce the duration of the pulmonary complications that did develop and the author thinks that such an effect could probably be expected only from repeated injections.

### Sovetskaya Khirurgiya, Moscow

Pp 1 136 (No 12) 1935 Partial Index

- Principles of Treatment of Acute Gastric Hemorrhages A B Rie—p 22  
Influence of Length of Inguinal Ligament on Formation of Inguinal Hernia B P Znachkovsky—p 32  
\*Kohler-Pellegrini-Stieda Disease A Ya Pytel—p 42  
Anatomopathology, and Clinical Course of Shadow of Pellegrini-Stieda Z V Basilevskaya—p 55  
New Method of Amputation of Leg H A Reinberg and A B Kaplan—p 65

**Kohler-Pellegrini-Stieda Disease**—Pytel defines the Kohler-Pellegrini-Stieda disease as a periarticular posttraumatic ossification developing principally in the tendon of the adductor magnus muscle as a small bony formation producing a peculiar painful symptom complex. He found its shadow in twelve out of 1,316 roentgenograms of cases of traumatic knee joints (0.91 per cent). He reports thirteen cases observed by him in the last five years. The etiologic factor is a relatively mild trauma direct or indirect the latter resulting from an exaggerated adduction. The pathogenesis has been interpreted as the result of a tearing off of a portion of periosteum and bone from the upper aspect of the inner femoral condyle or as an ossification process of the soft periarticular tissues without the participation of the periosteum. The sickle shaped x-ray shadow is formed most frequently within the tendon of the adductor magnus muscle. This shadow becomes apparent in roentgenograms from three to four weeks after the injury. The symptoms are presence of pain within two three or five weeks after injury and tenderness limited to an area of swelling over the inner femoral condyle. Complete flexion and extension of the knee joint cause pain. Exact diagnosis is made on roentgenograms made immediately after the injury and at later periods. Most authors advise conservative therapy. This consists of immobilization, diathermy, ultraviolet irradiation and later, massage,

movement and roentgen irradiation. Operative intervention becomes necessary only after the conservative measures have failed or in the presence of a large bony formation interfering with the function of the joint.

### Acta Chirurgica Scandinavica, Stockholm

77 307 631 (March 10) 1936 Partial Index

- Megaduodenum. Remarks on Genesis and Symptomatology of Chronic Dilatation of Duodenum. Case G. Petren—p. 307  
Total Sequestration of Kidney. Case G. Petren—p. 326  
\*Postoperative Progressive Gangrene of the Skin. N. Liedberg—p. 354  
\*Studies of Material of Head Injuries from Surgical Clinic in Lund with Especial Reference to Temporal Bone Involvement. T. Skoog—p. 383  
Symptomatology and Treatment of Spinal Cord Tumors. N. Liedberg—p. 452

**Postoperative Progressive Gangrene of Skin**—Liedberg reports a case in which, following an operation for gangrenous appendicitis, there developed on the fifth postoperative day a necrotic gangrenous process about the primarily closed wound. While exhibiting a tendency to epithelization, the necrotizing process slowly but unremittingly advanced in spite of the local measures until at the end of five months it had involved practically all the anterior aspect of the trunk and caused the patient's death. The process was characterized by slow progression, which amounted to no more than 1 cm a week and by only a moderate rise in temperature, moderate anemia and excruciating pain, particularly on manipulation of the wound. The author reviewed forty cases from the literature in which the gangrenous process involved the skin of the abdomen or the thorax. The process seems to constitute a fairly typical clinical entity characterized by slowly advancing gangrene of the skin and the subcutaneous tissue and accompanied by severe pain. Most of the cases developed after an operation with drainage of a suppurative appendicitis. Meleney's studies suggest that the gangrene is the result of a synergistic action on the part of a specific enterogenous streptococcus with staphylococci. The only effective treatment is radical excision of the margins of the wound with a diathermy knife.

**Head Injuries and Temporal Bone Involvement**—Skoog analyzes 794 injuries of the skull treated at the Surgical University Clinic of Lund, Sweden, between 1924 and 1933. Of these, 370 had a verified fracture. The author deals in detail with fractures involving the temporal bone. The diagnosis of a fracture of the temporal bone is aided by roentgen rays far more now than was formerly the case. The percentage of clinically certain or suspected cases of fracture in which the roentgen observation was negative was extremely low in 1933 as compared with conditions in 1924. The surest diagnosis, however, is furnished by the anatomic and functional otologic examination. In 389 per cent of the cases of fracture an involvement of the temporal bone and the auditory organ could be established. The different types of temporal bone fractures are discussed in detail with reference to their symptomatology and prognosis. The therapeutic measures in uncomplicated cases run in a strictly conservative direction, stressing careful observation of the cerebrospinal fluid. Operation is recommended at the slightest indication of incipient meningitis. It consists of chiseling of the mastoid process and exposure of the dura. The radical operation should be resorted to only in exceptional cases. Ninety-four fractures of the temporal bone comprising ninety pyramidolongitudinal fractures and four pyramidotransverse fractures, have been the object of a closer functional otologic examination. The four clinically suspected pyramidotransverse fractures exhibited a loss of the cochlear and vestibular functions. Three exhibited a spontaneous nystagmus toward the unaffected side, and in the fourth the nystagmus was not definite but roentgen study suggested that the fracture involved the labyrinth. Facial palsy occurred in only one of the cases and showed some tendency to improvement during hospitalization. The ninety pyramidolongitudinal fractures showed with two exceptions, auditory disturbances of the middle ear as well as of the internal ear, though chiefly of the former, and vestibular disturbances in 433 per cent. Involvement of the temporal bone does not seem to entail an increased predisposition to disturbances within the vestibular area as compared with fractures of other localization or in cranial trauma without fracture.

### Bibliotek for Læger, Copenhagen

128 31 60 (Feb.) 1936

- \*Problems Concerning Dementia Praecox. Investigations Regarding Frequency Hereditary Relations. Relations of Clinical Subgroup The Especial Disposition and Biologic Reactions. Cn. J. C. Smith—p. 31  
Comparative Investigations on Relations of Serum Cholesterol in Normal Persons and in Manic Depressive Patients After Administration of Cholesterol in Olive Oil and After Administration of Olive Oil. G. Brun—p. 57

**Problems Concerning Dementia Praecox**—Smith states that, while there may be a slight preponderance in the occurrence of psychoses of the same subgroup in a given family, the different subgroups appear in near relatives, suggesting a close connection. The psychoses in the dementia simplex and catatonia groups occur on the average earlier in the patient's life than do the psychoses in the dementia paranoides group. Dementia simplex is more frequent in men, while dementia paranoides occurs oftener in women. The changes in the spinal fluid are noticeably greater in the dementia simplex and catatonia groups. The changes in the blood picture are alike in the three groups. The patients having dementia paranoides show more tendency to pyknoform physical types. The author is inclined to consider dementia praecox a hereditary entity, the difference in the phenotype of the subgroups being as a rule due not to a special tendency but to the constitution, the same tendency causing early or late and more or less deleterious psychoses, the most marked cases appearing in the leptiform types and the pyknoform offering more resistance. The more pronounced changes in the spinal fluid in dementia simplex and catatonia might perhaps be considered an expression of the greater organic changes in these two groups.

### Hygiea, Stockholm

98 65 96 (Feb. 15) 1936

- \*Morgagni's Syndrome (Internal Frontal Hyperostosis. Virilism Obesity). F. Henschen—p. 65

**Morgagni's Syndrome**—Henschen says that internal frontal hyperostosis, apparently considered relatively rare in the literature, was present in sixty-six, or about 40 per cent, of 160 skulls of women aged 47 or more. Except for one atypical case in a man, the condition was seen in his material only in women, and not in women less than 47. In the literature seven or eight cases of changes closely resembling frontal hyperostosis in women have been reported in men. A few cases are described in younger women, as in a woman aged 40 presenting acromegaly, in an epileptic patient aged 37 having juvenile dementia, and in a woman aged 34 having adiposogenital dystrophy. The development of this feminine anomaly is apparently related to the change which the feminine organs undergo in connection with the climacterium. The physical constitution often shifts toward the masculine, in some cases of acromegaly, changes or of marked acromegaly together with obesity, disturbances in the function of the pituitary are suggested. The site of the development is ascribed to "local disposition." Morgagni's syndrome, the author emphasizes, is a slightly abnormal variant of the change that normally occurs in the feminine endocrine status after the menopause and gives no clinical symptoms. Internal frontal hyperostosis is also of interest from the point of view of paleopathology, constituting an inconstant sexual characteristic which may be significant in the determination of age and sex in skull fragments.

### Ugeskrift for Læger, Copenhagen

98 171 192 (Feb. 27) 1936

- Acute Abdominal Pain. M. Fenger—p. 171  
Deformity. J. Kraft—p. 180  
\*Treatment of Chronic Encephalitis with Intravenous Injections of Sodium Iodide. A. Olsen—p. 180

**Treatment of Chronic Encephalitis with Sodium Iodide**—Olsen asserts that a noticeable objective and subjective improvement resulted in five out of eleven cases treated with sodium iodide according to Economo. In three additional cases treatment was discontinued, in one because of idiosyncrasy to iodine, in the second, with spasms, because of aggravation of these after the injections, and in the third because of rise in temperature on the days after the injection. The treatment as carried out is without danger.





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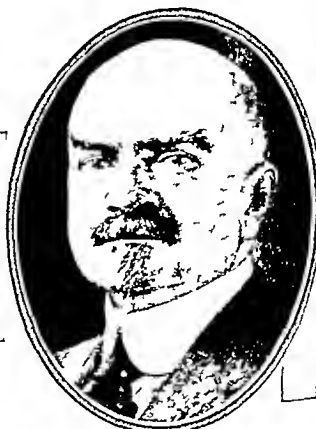
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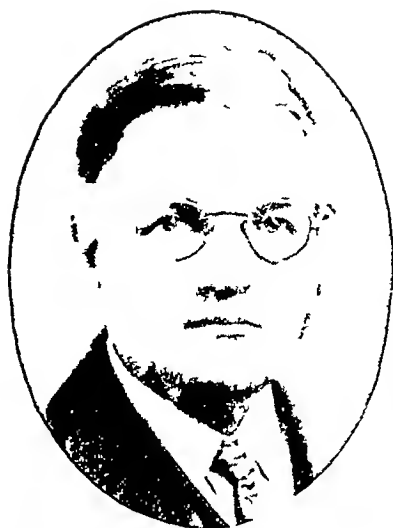


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## BILATERAL GANGRENE OF FEET DUE TO ERGOTAMINE TARTRATE USED FOR PRURITUS OF JAUNDICE

REPORT OF A CASE STUDIED ARTERIOGRAPHICALLY  
AND PATHOLOGICALLY

WALLACE M YATER, M D

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WASHINGTON, D C

Ergot is one of the most efficacious and commonly used drugs. Ergot itself (*Claviceps purpurea*), a fungus which grows on rye and certain grasses, is a variable mixture of various potent and relatively inert substances. The main active constituents are the alkaloids ergotoxine and ergotamine, and the amines histamine and tyramine. Before the isolation of crystalline ergotamine, the official fluid extract of ergot was the preparation mainly employed. According to Rothlin,<sup>1</sup> Nelson and Pittee<sup>2</sup> and others the alkaloid ergotamine is the most important constituent of ergot and the one the presence of which in ergot preparations should be ensured. Since the isolation of ergotamine ( $C_{33}H_{45}O_5N$ ) by Stoll and Spiro in 1921 this alkaloid has come to be extensively used mainly as the tartrate.<sup>3</sup> Its most important uses have been the prevention and control of postpartum hemorrhage from atonic uterus, and the treatment of retained lochia delayed involution bleeding following cesarean section, and hemorrhage from abortion. It has recently been advocated by various authors for the treatment of many other conditions, however, among which are migraine, exophthalmic goiter, pulmonary hemorrhage, pruritus, diabetes mellitus, diabetes insipidus, melancholia, prolapse of the rectum, and glaucoma. However, for years the Council on Pharmacy and Chemistry has given warning about the possibility of ergotism from the use of this drug.

Ergot consumed in bread made principally of rye has been known for centuries to cause epidemics in Europe of ergotism, or chronic poisoning due to ergot. There are two forms of ergotism: the gangrenous and the convulsive. Sometimes only the gangrenous form occurred in the epidemic, at other times only the convulsive, while occasionally the two forms occurred in the same epidemic.<sup>4</sup> The convulsive form which does

not produce such highly characteristic effects as the gangrenous has not received the same historical recognition as the latter.<sup>5</sup> The existence of the two forms is probably due to the presence of variable quantities of two or more poisonous principles in the spur. The exact pathogenesis of the convulsive form is not known.

The excellent researches of Dale<sup>6</sup> in 1906 on the physiologic actions of ergot have stood the test of time. Dale and his co-workers and others have extended the work to include the actions of the various more recently isolated constituents of ergot. Dale stated in 1906 that "the first definite laboratory demonstration of the stimulant effect of ergot on the peripheral arteries was given by Kobert. The gangrenous phenomena that he observed in the comb and other peripheral structures of the fowl and the pig as the result of administering sphacelmic acid, were attributed by von Recklinghausen, who investigated the phenomena histologically, to powerful and persistent constriction of the arterioles." Dale's main conclusions from his experiments on animals were as follows:

1 The physiological effects of preparations from ergot such as cornutine and sphacelotoxin fall naturally into two groups: (a) Stimulant effects on plain muscular organs prominent among which are contraction of the arteries, the uterus and the sphincter of the iris. (b) A specific paralysis of the motor elements in the structures associated with sympathetic innervation which adrenalin stimulates, the inhibitor elements retaining their normal function as do also both motor and inhibitor autonomic nerve supplies of cranial and sacral root origin.

2 It is probable that these two sets of effects are produced by different active principles of which the one responsible for the peripheral paralysis appears also to be concerned in the central convulsant effects described by Kobert and others.

According to Cushny,<sup>7</sup> "the study of the alkaloids of ergot, ergotamine and ergotoxine, in the living organism has shown that they resemble epinephrine in some of their effects and like it act on the myoneurial junctions of the true sympathetic nerves. But while epinephrine stimulates these junctions indiscriminately whether they are motor or inhibitory in character the ergot alkaloids do not act on the inhibitory junctions at all and while stimulating the motor myoneurial junctions in small doses, paralyze them in large amounts. They are less powerful than epinephrine but the effects last longer and can be elicited by hypodermic injection or even by administration by the mouth.

The secondary paralyzing action of ergotamine on the myoneurial junctions is elicited only by large doses and does not occur in the therapeutic use of ergot." There has been much discussion by physiologists and pharmacologists with regard to the dual action of ergotamine both

From the Georgetown University School of Medicine.  
1 Rothlin E. Recherches experimentales sur l'ergotamine alcaloide specifique de l'ergot de Seigle. Arch. internat. de pharmacodyn. et de therap. 27: 459, 1923.

2 Nelson E. E. and Pittee G. I. The Present Status of the Ergot Question with Particular Reference to the Preparation Used in Obstetrics and Gynecology. Am. J. Obst. & Gynec. 16: 73 (July) 1925.

3 Manufactured under the trade name of Cynergen by the Sandoz Chemical Works, Inc.  
4 Kravinsky S. Pathologische und kritische Beiträge zur Mutterkornfrage. Jena. Gustav Fischer 1888. Kolo off G. A. Ergotism. Its Etiology, Clinical Signs, Course and Treatment Principally According to Data of Epidemics of 1909-1910. Russk. Vrach 11: 55, 120 and 198, 1912.

5 Allbutt T. C. and Rolleston H. D. A System of Medicine. New York: Macmillan Company, 1910, vol. 2, pt. 1.

6 Dale H. H. On Some Physiological Actions of Ergot. J. Physiol. 24: 1-3, 1906.

7 Cushny A. R. Pharmacology and Therapeutics. Philadelphia: Lea & Feliger, 1934.

in constricting and in dilating the vessels. Whatever may be the answer to this knotty problem, from the practical clinical point of view it is mainly the constrictor action that causes concern.

Cases of gangrene or threatened gangrene of the extremities due wholly or partly to the therapeutic use of ergotamine tartrate while not numerous have been sufficiently conspicuous to give pause for thought. Most of these cases have concerned women with puerperal fever. Carreras<sup>8</sup> described a fatal case in which a woman with severe puerperal fever after a total oral dosage of 0.0265 Gm of ergotamine tartrate in one week developed excitement, formation vomiting, diarrhea, sweating, weak pulse, muscle contractures, fixed miosis and gangrene of the feet. Antoine<sup>9</sup> reported a case in which a woman with severe puerperal fever after a total dosage of 0.05425 Gm of ergotamine tartrate developed bilateral gangrene of the legs. There was thrombosis of all the veins of the amputated limbs and spasm of the arteries. He described a similar case of gangrene of one leg following the use of 5 cc of stabilized ergot. In neither case did he regard the ergot preparation as the sole cause of the gangrene but only as a sensitizing factor.

Guggisberg<sup>10</sup> was of the same opinion. He reviewed ten cases of gangrene following labor at term or mis-

esses. He called attention to the fact that the literature contains a large number of reports of puerperal gangrene associated with puerperal infection in which ergot preparations were not used. He concluded that the most common causes of such accidents are emboli and thrombosis occluding peripheral vessels. In his opinion the gangrene is due not to vascular spasm but possibly to the action of some toxin on the vessels and tissues producing peripheral vascular stasis. He warned, however, against the use of ergot preparations in febrile puerperal patients.

Saenger<sup>11</sup> reviewed the literature dealing with gangrene in the puerperium or following miscarriage which had been attributed to ergotamine tartrate. He found fourteen cases reported. In seven there was gangrene of both feet, in four gangrene of one leg or foot in one gangrene of some of the fingers of one hand in one gangrene of the uterus and of the right leg, and in one gangrene of the uterus. Practically complete recovery without amputation occurred in six cases. The range of total dosage was from 65 to 117 mg of ergotamine tartrate. In no case was there a normal labor or puerperium. In nine cases there was puerperal fever and in four cases febrile abortion. In a few also the history suggested pre-existing functional vascular disease. In all cases the possibility existed of septic vascular damage and the ergotamine tartrate was assumed by Saenger to be merely an additional malefactor. In some of the amputated limbs, thrombi in veins and contracted arteries were found. In his discussion he called attention to the eighty cases of peripheral puerperal gangrene collected by Wormser<sup>12</sup> and the large number of cases collected by Stein<sup>13</sup> in the great majority of which the lower limbs were affected and in which ergot preparations did not play a role. Ellerbroek<sup>14</sup> came to a conclusion similar to Saenger's in his three cases of gangrene in women with an abnormal puerperium in these cases the gangrene affected sites other than the distal parts of the extremities.



Fig. 2—Thorium dioxide sol arteriogram of the right leg. There is practically complete occlusion of all the main arteries at the junction of the middle and lower thirds of the leg. Collaterals pass downward from above the point of occlusion.



Fig. 1—Gangrenous left foot. The condition of the right foot was practically identical.

carriage in which ergotamine tartrate had been used and stressed the point that in none of the cases was the puerperium normal. He believed that puerperal infection predisposes to the likelihood of gangrenous proc-

<sup>8</sup> Carreras, F. Un caso de ergotismo en el puerperio (Intoxicacion por la ergotamina). *Rev. med. de Barcelona* 1: 20, 1924.  
<sup>9</sup> Antoine, T. Secléfrage und puerperale Gangran. *Arch. f. Gynak.* 139: 492, 1900.  
<sup>10</sup> Guggisberg, H. Beitrag zur Secléfrage. *Zentralbl. f. Gynak.* 53: 585 (March 9) 1929.

<sup>11</sup> Saenger, H. Ueber Puerperalgangran bei septischen Zustanden und Gynäcogenmedikation. *Zentralbl. f. Gynak.* 53: 586 (March 9) 1929.  
<sup>12</sup> Wormser, E. Ueber puerperale Gangran der Extremitäten. *Wien. Klin. Rundschau* 18: 71, 1904.  
<sup>13</sup> Stein, A. Gangrene of the Extremities Following Gynecologic Operations and the Puerperium—with Remarks on Embolism. *Am. J. Obst. & Gynec.* 9: 595 (May) 1925.  
<sup>14</sup> Ellerbroek, A. Puerperal Gangran und Mutterkorngangran. *Zentralbl. f. Gynak.* 53: 1384 (June 1) 1929.

The case of Oginz<sup>15</sup> is interesting. A primiparous patient, aged 19, developed evidence of severe infection after a normal labor. An injection of 1 cc of ergotamine tartrate was given every four hours, so that a total of 45 cc (0.0225 Gm) was given within two weeks. Fluidextract of ergot to the extent of 6 drachms (22.5 cc) also was given during this time. One week after labor the upper and lower extremities became cold and cyanotic, and disappearance of the radial pulses soon followed. Two days later severe pain and numbness began in the toes. Later the fingers became very painful and tingled. The right foot became very cyanotic, the left heel very discolored. Ergotamine tartrate was given for several days after these symptoms appeared, but twenty-four hours after its use was discontinued and local treatment instituted rapid improvement began, the radial pulses returning in good quality. The left foot improved faster than the right. The final result was that three toes of the right foot were lost after ten weeks by amputation, and later a metatarsal bone was removed surgically. The puerperal infection had subsided during the period of recovery of the extremities. This case is fairly illustrative of the cases in which nearly complete recovery from ergotism

While it is true that many cases of gangrene do occur in patients with severe puerperal infection to whom little or no ergot has been given and that practically all the cases of gangrene in which ergot has been implicated have been complicated by puerperal infection, nevertheless the conclusion cannot be escaped that the ergot played a very important role in many of them, as illustrated so well by Oginz's case.



Fig. 3.—Cross section of the right anterior tibial artery at about the middle of the occluded portion. There is marked constriction with concentric infolding and hyaline degeneration especially of the intima. Van Gieson's connective tissue stain.  $\times 23$ .

ensues. Schmidt's<sup>16</sup> case was almost identical but no parts were lost. Roch's<sup>1</sup> case was quite similar, partial amputation of one foot eventually becoming necessary.



Fig. 4.—Cross section of the right posterior tibial artery near its lower end, with its venae comitantes. The artery is greatly constricted with infolding of a sector of the wall. The veins are moderately collapsed. The elastic laminae are shown as black wavy lines. Stained with acid orcein.  $\times 19$ .

Gangrene of the extremities has also followed the use of ergotamine tartrate for exophthalmic goiter. Speck<sup>18</sup> reported the occurrence of impending gangrene of both feet and legs, which became painful, cold, anesthetic and white with bluish mottling following a total dosage of 186 mg of ergotamine tartrate (186 tablets) given in two courses with a break of three weeks in the treatment. Also the right arm was painful. Slow recovery ensued with some residual gangrene of a little toe and an area on the dorsum of the foot. Speck attributed recovery to the use of theophylline. Platt<sup>19</sup> reported a similar case of gangrene of the feet with slow recovery. He attributed recovery partly to the use of scopolamine. Muller<sup>20</sup> observed a case of bilateral impending gangrene of the feet and legs after the injection of 24 cc of ergotamine tartrate with eventual loss of all the toes of one foot. Milder cases have been reported in which there were severe pains along the course of the arteries without evidence of much circulatory disturbance. The results of the treat-

<sup>15</sup> Oginz, J. Ergotismus gangrenosus. *Am J Obst & Gynec* 1906 (May) 1930.

<sup>16</sup> Schmidt, O. Gangrän an den Extremitäten nach normaler Entbindung. *Tubargyridität und septischen Abort*. *Zentralbl f Gynäk* 52: 1950 (Aug 4) 1928.

<sup>1</sup> Roch, M. Ergotisme gangreneux. *Pres med* 45: 31 (Jan 5) 1906.

<sup>18</sup> Speck, W. Gefahr des Mutterkornbrandes bei Anwendung von Gynergen (Sandoz) in der Geburtshilfe. *Med Klin* 26: 1521 (Oct 10) 1930.

<sup>19</sup> Platt, R. Ueber die Behandlung des Morbus Basedow mit Ergotamin. *Klin Wchnchr* 9: 258 (Feb 8) 1930.

<sup>20</sup> Muller, A. Zur Frage der Behandlung des Morbus Basedow mit Ergotamin. *München med Wchnchr* 80: 1754 (Nov 10) 1933.

ment of exophthalmic goiter with ergotamine tartrate are certainly not sufficiently encouraging to warrant continuance of this form of therapy.

Besides gangrene, which is the most important toxic disturbance due to ergotamine tartrate, other toxic manifestations have been observed. The commonest are headache, nausea, vomiting, diarrhea and dizziness. Less common symptoms are weakness, foimication and

chill, which was repeated daily. There were generalized muscular aching, malaise and thirst. The family history was irrelevant. The past history was negative except for chronic constipation, hemorrhoids, the "corn itch," and some dysuria and nocturia. The patient was thin but muscular with apathetic facies, a low order of intelligence and moderate jaundice with scattered petechiae of the arms, thorax and abdomen. He was cooperative but somewhat confused. The pupils were moderately constricted. There was evidence of poor dental hygiene and the tongue was coated. The heart and lungs were apparently normal. The heart rate was 80 per minute with regular rhythm and respiration was normal. The blood pressure was 110 systolic and 80 diastolic. Moderate tenderness and rigidity were present in the right upper quadrant of the abdomen and slight tenderness was noted in the right costovertebral angle. The prostate gland was moderately hypertrophied as determined by digital rectal examination. The extremities were apparently quite normal. The deep tendon reflexes were equal but moderately reduced in intensity. The temperature was 98.6 F. Urinalysis showed a trace of albumin. A hemogram showed 83 per cent hemoglobin (Newcomer method), 4,270,000 erythrocytes and 9,650 leukocytes per cubic millimeter of blood, with 64 per cent polymorphonuclear neutrophils, 12 per cent eosinophils, 1 per cent mast cells, 20 per cent small lymphocytes and 3 per cent monocytes. The Wassermann and Kahn reactions of the blood were negative. The

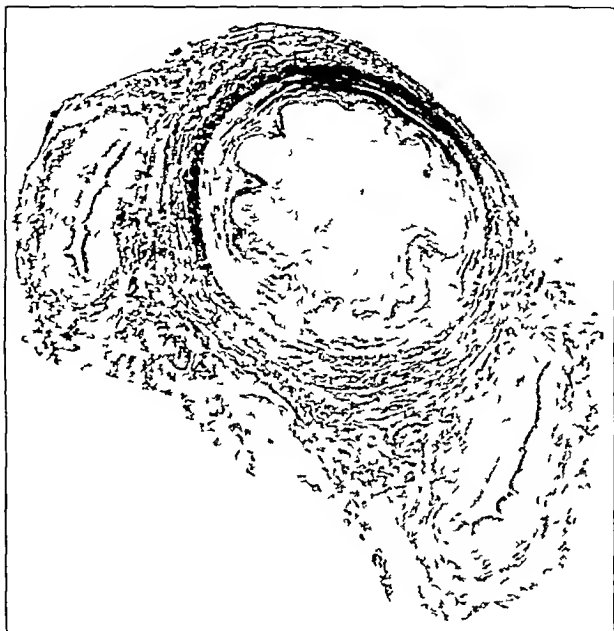


Fig 5—Cross section of the left posterior tibial artery, near its lower end with its venae comitantes. The artery is moderately constricted with infolding of the intima; the lumen is filled with a partially organized thrombus and there is hyaline degeneration of the wall. The veins are empty and undergoing hyaline degeneration. Van Gieson's connective tissue stain.  $\times 17$ .

itching, coldness of the skin, thirst, confusion, depression, drowsiness, cyanosis, syncope, collapse, anginal pains, tachycardia or bradycardia, elevation or lowering of the blood pressure, amblyopia, cataract, twitching, muscular cramps, convulsions, hemiplegia, tabetic symptoms and sudden death. Labbe, Boulin, Justin-Besançon and Gouyen<sup>21</sup> described a case of hyperthyroidism, treated with ergotamine tartrate, in which there were severe anginal pains, hemiplegia and jacksonian epilepsy. Only 1.5 mg of the drug was administered. Another patient of theirs vomited, became comatose and died in five hours after the administration of only 0.5 mg of the drug. Panter's<sup>22</sup> hyperthyroid patient developed miosis with fixed pupils and absence of the deep reflexes following the injection of 5 mg of ergotamine tartrate in three days. These manifestations disappeared within eighteen days. Kravitz<sup>23</sup> reported a case of optic atrophy secondary to neuroretinitis, apparently produced by pills containing ergot taken because of amenorrhea.

#### REPORT OF CASE

**Clinical History.**—An unmarried white man, aged 64, a fisherman, admitted to the Georgetown University Hospital Aug 1 1935, had spent much time wading in shallow water to obtain live bait. His illness had begun a week before with a severe

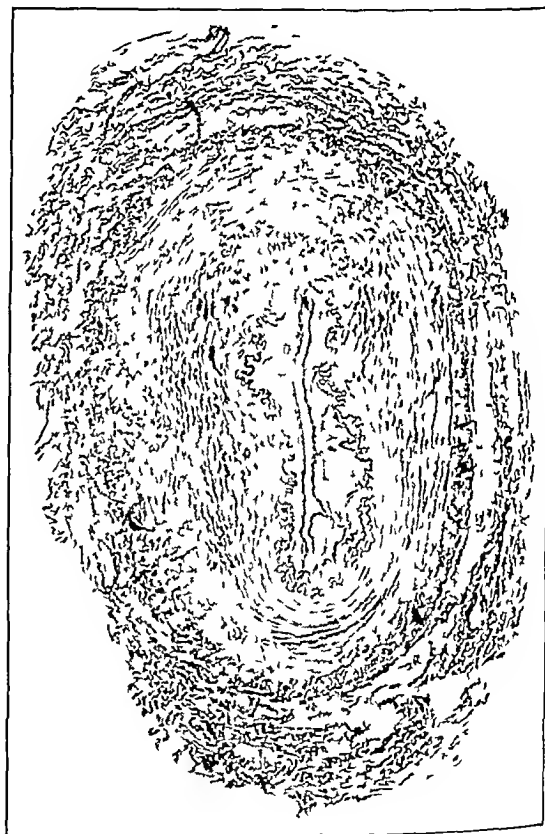


Fig 6—Cross section of the left anterior tibial artery near the upper end of the occluded portion. It is extremely constricted, the lumen being slitlike. There is moderate atherosclerosis. Hematoxylin and eosin stain.  $\times 28$ .

qualitative van den Bergh reaction was direct in thirty seconds and the quantitative test showed 13.6 mg of bilirubin per hundred cubic centimeters of blood.

The day after admission the patient began to complain of severe generalized pruritus. For this, 1 cc of ergotamine tartrate (0.0005 Gm) was ordered by a resident to be given by hypodermic injection three times daily, although the usual method of administration in this hospital had been oral. It was administered for six and one-third days a total of 0.0092

<sup>21</sup> Labbe M, Boulin R, Justin-Besançon L and Gouyen J. Angine de poitrine ergotaminique. *Press med* 37: 1069 (Aug 17) 1929.

<sup>22</sup> Panter H. Tabicche Symptome nach Gynergen Injektionen. *Med Klin* 22: 80 (June 4) 1926.

<sup>23</sup> Kravitz Daniel. Neuroretinitis Associated with Symptoms of Ergot. *Ann Arch Ophth* 13: 201 (Feb) 1935.

Gm of ergotamine tartrate being given<sup>24</sup> On the second day of the administration of ergotamine tartrate there was coldness of the upper extremities which was not later complained of On the third day there was tenderness of the long bones of the legs On the fourth day there was a subjective burning sensation in the toes of the left foot, and coldness and blueness of the distal one third of both feet were noted The left dorsalis pedis artery was palpable but not the right The blood pressure on this day was 138 systolic and 120 diastolic On the fifth day



Fig 7—Higher magnification of a sector of the wall of the artery shown in figure 3 The hyaline degeneration is better shown There are nuclei probably of connective tissue cells mainly in the infolded portion Van Gieson's connective tissue stain  $\times 153$

the legs and feet were very painful the first three toes of the left foot and the first two of the right were purplish red and pulsations could not be felt in the vessels of either foot On the sixth day both feet were painful cold and blue, but faint pulsations were palpable in the dorsalis pedis arteries

At this time the ischemia of the feet was not associated by the visiting physician with the use of ergotamine tartrate, which he was not informed was being given, but the next day the use of this drug was stopped by the resident who had ordered it because the pruritus had ceased The feet continued to be very painful, the pulsations of the arteries of the feet ceased entirely and the skin of the feet remained cold and mottled with blue On the thirteenth day after the beginning of administration of ergotamine tartrate the toes of both feet began to turn black and to become dry and shriveled with a definite line of demarcation The feet had continued to be very painful The pulsations of the popliteal arteries were strong The blood pressure in the arms was 110 systolic and 70 diastolic, and in the thighs it was 155 systolic and 90 diastolic At this time the diagnosis of probable ergot poisoning was made although the medical consultant was not informed of the fact that ergotamine tartrate had been used Amputa-

tion of both feet at the junction of the middle and lower thirds of the legs was recommended by the surgical consultant

During the month in which the gangrene of the feet had been developing the patient had improved greatly otherwise He slowly became clear mentally the jaundice disappeared, and the abdominal tenderness and rigidity subsided During the first ten days the temperature rarely went above 99.5 F but after this it was almost continuously irregularly elevated ranging from 98.6 to 104.2 F but usually between 100 and 102 F The pulse rate ranged usually between 90 and 100 per minute Because of dehydration and jaundice 5 per cent dextrose solution was given intravenously in amounts of from 1 to 3 liters daily Other symptomatic and supportive measures of therapy were employed

September 13 just forty days after the first dose of ergotamine tartrate had been given the right leg was amputated about half way between the knee and the ankle By this time mild infection was evident in both feet at the line of demarcation of the gangrene (fig 1) At the time of operation an arteriogram was made by means of injection of 15 cc of thorium dioxide sol into the right popliteal artery (fig 2) This showed the main arteries of the leg to be smooth in outline and apparently normal down to the lower third of the leg where they faded out into a point small long and somewhat tortuous collateral arteries passed downward toward the feet from the arteries above the point of occlusion So far as we know, these are the first arteriograms ever made from the human subject in a case of gangrene due to ergot September 16 the left foot was amputated below the ankle Following these operations the fever continued as before and because of moderate anemia blood transfusions were given The stump of the right leg healed normally that of the left, however became necrotic and on September 26 the left leg was amputated about half way below the knee This new stump healed normally

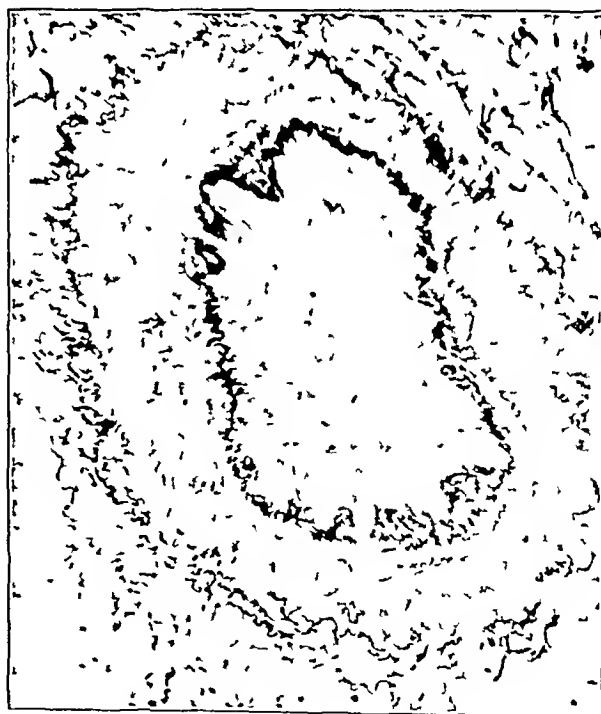


Fig 8—Cross section of a small artery in the foot proximal to the gangrenous area The vessel is moderately constricted and the intima appears to be proliferated Stained with acid orcein  $\times 97$

By September 30 the temperature had returned to normal and it remained so November 4 the patient left the hospital in good general condition with the stumps of both legs healed

**Examination of the Amputated Extremities**—Both feet showed typical dry gangrene with moderate secondary infection and a line of demarcation at the distal third (fig 1) When the vessels of the amputated legs were dissected out all showed grossly similar changes They all appeared to be constricted

<sup>24</sup> Lichtman (Therapeutic Response to Ergotamine Tartrate in Pruritus of Hepatic and Renal Origin) *J A M A* 97:1463 (Nov 14) 1931 and Snell and Keyes (Pruritus of Jaundiced Patients: Its Incidence and Treatment) *Clin North America* 16:1455 (Nov) 1931 reported excellent results with ergotamine tartrate in cases of pruritus due to jaundice They used 1 mg orally three or four times daily Snell and Keyes suggested that if used subcutaneously or intramuscularly doses of from 0.5 to 1 mg be used once daily

throughout their course. The degree of constriction varied, however, at different points. In some sections the vessels were so severely constricted that their lumens were almost obscured. In other sections they were less severely constricted, and in these areas the lumens were filled with thrombi. The veins were all practically empty.

Microscopic sections of all the arteries frequently including their venae comitantes were made and various stains were employed (hematoxylin and eosin, van Gieson's connective tissue stain, Masson's trichrome stain, Verhoeff's elastic tissue stain and acid orcein). The sections of the larger arteries confirmed the gross appearance of these vessels. Depending on the degree of constriction of the artery, the wall appeared to be thickened. The greater the degree of constriction the greater was the apparent thickening. The constriction took various forms. In some sections the intima was thrown into concentric folds which projected into the lumen, almost completely filling it (fig. 3). In others there was eccentric infolding with one sector of the wall bulging deeply into the lumen (fig. 4). In still other sections there was only moderate and irregular concentric infolding with the lumen fairly well preserved and filled with a thrombus undergoing organization (fig. 5). At some points where the constriction was great the lumen on cross section was slitlike, apparently because of the presence at these points of moderate atherosclerosis (fig. 6).

The thrombi were all in the less constricted segments. The venae comitantes were usually empty or contained apparently liquid blood. They seemed to be moderately constricted or collapsed and their walls also appeared to be thickened. There was no evidence of inflammation in or about the walls of any of the vessels except in the gangrenous portions of the feet. The walls of all the vessels, more particularly the arteries, were in the process of hyaline degeneration (fig. 7). Both the media and the intima were thus affected. The more constricted the vessel the thicker and more dense and homogeneous was the intima. The hyaline substance had separated and partially replaced the muscle fibers of the media. Into the intimal folds the media appeared to be streaming, but in these portions of the wall hyaline changes were advanced and nuclei apparently of connective tissue cells were present in moderate numbers. The internal and external elastic laminae were fairly well preserved, although the internal lamina was broken in places in the most severely constricted segments and the external lamina was considerably fragmented although rather compact. The small arteries and arterioles showed changes very similar to those of the arteries but while they were constricted the intima was not usually thrown into folds and thrombi were rarely seen.

In the feet just proximal to the gangrenous area some of the small arteries showed changes very suggestive of proliferation of the intima (fig. 8) in some instances the lumen being almost completely obliterated by the cells. Within the gangrenous area the walls of the small arteries and veins showed various degrees of secondary inflammatory reaction and a few small veins contained thrombi. One medium sized nerve showed vacuolization of the myelin sheaths. There was astonishingly little evidence of arteriosclerosis.

#### COMMENT

Since the study of von Recklinghausen<sup>25</sup> long ago of the histologic changes that occur in the cock's comb in ergotism little has been added to his description. Others have confirmed his observations. Recently Lewis<sup>26</sup> with the collaboration of Gelfand has carried out histologic researches on the gangrene of the comb of white Leghorn hens due to daily injections of 10 mg. of ergotamine into the breast muscles. From the study these workers concluded that the "vascular spasm in ergot poisoning does not arrest the circulation and so does not cause gangrene directly. The spasm profoundly slows the blood stream and leads to the secondary changes in the vessels described" (thrombi due

to stasis from injury to the endothelium and loss of plasma). This idea is strengthened by the results in our case, although the degree of constriction alone seemed sufficient to be productive of serious ischemia.

The fundamental pathogenesis of the gangrene, as demonstrated by our case, is certainly intense constriction of the arteries and arterioles with thrombosis completing the vascular occlusion. The hyaline change are undoubtedly secondary to nutritional deficiency of the walls of the vessels due to occlusion of the *vasa vasorum* by the constriction of the vessels.

Kaunitz,<sup>27</sup> on the basis of experiments similar to those of Lewis and because of certain etiologic resemblances, has postulated the possible implication of ergot in the causation of thrombo-angitis obliterans. The suggestion is interesting but proof is certainly lacking although there is pathologically a superficial resemblance between the two conditions. More recently McGrath<sup>28</sup> has called attention to the pathologic similarity and has reemphasized the fact that in epidemics of gangrenous ergot poisoning the male has been the more predominant victim, just as he is of Buerger's disease. He found the predominant histopathologic features of the gangrenous tails of poisoned rats to be marked cellular proliferation and swelling of the intima, especially in the smaller arteries and arterioles, and organizing thrombi in the arteries. The proliferation of the intima of some of the small arteries and arterioles has been referred to in our case. McGrath showed that although gangrene could be produced in both males and females, the females were completely protected by the use of sufficiently large daily doses of theelin, while the male rats were incompletely protected. The inference is that in the case both of ergot poisoning and of thrombo-angitis obliterans the female may be protected by a sex hormone, probably the estrogenic substance of the ovary.

Ergotamine tartrate is such a useful drug, especially when properly employed by obstetricians that it should not be condemned because of occasional cases of gangrene or other poisonous effects. Certain precautions should be observed, however. A study of the literature leads definitely to the conclusion that great hesitancy should be employed in its use in the febrile puerperium. Probably also the drug should not be administered to patients, male or female, with any acute infectious or toxic disorder. A history of vascular disease, whether functional or organic, would appear also to constitute a contraindication. Our patient was suffering from toxemia of unknown cause, and possibly his occupation, which involved frequent wading in water, may have predisposed the vasomotor innervation of the arteries of his legs and feet to increased susceptibility to toxins.

Some authors advocate a small test dose of the drug to determine whether increased susceptibility exists. Others suggest using the drug orally only. Neither of these precautions is sufficient for the avoidance of toxic effects. It seems to us that, when patients with the contraindications mentioned have been eliminated, the important precautions are the avoidance of prolonged use of the drug and careful watch for the appearance of toxic manifestations, including frequent observation of the hands and feet.

At the slightest indication of a toxic effect, whether systemic in nature or local, use of the drug should be

<sup>25</sup> von Recklinghausen. *Handbuch der allgemeinen Pathologie*. Stuttgart 1883.

<sup>26</sup> Lewis, T. The Manner in Which Necrosis Arises in the Fowl's Comb Under Ergot Poisoning. *Clin. Sc.* 2: 43 (Sept.) 1933.

<sup>27</sup> Kaunitz, J. The Pathological Similarity of Thrombo-Angitis Obliterans and Endemic Ergotism. *Am. J. Path.* 6: 299 (May) 1930.

<sup>28</sup> McGrath, E. J. G. Experimental Peripheral Gangrene. Effect of Estrogenic Substance and Its Relation to Thrombo-Angitis Obliterans. *Arch. Int. Med.* 55: 942 (June) 1935.



discontinued. Measures to produce vasodilatation should be instituted immediately on the appearance of evidence of disturbed peripheral circulation. Polak<sup>29</sup> found that in experimental gangrene the administration of epinephrine markedly delayed the gangrenous process. Possibly this drug would be of value in clinical cases. Some other strongly vasodilating drug, such as papaverine hydrochloride, might also be tried. Mild local heat should be carefully applied. The value of passive vascular exercises induced by alternating positive and negative pressures is questionable, but this method of treatment deserves a trial.

#### SUMMARY AND CONCLUSIONS

1 Ergotamine tartrate, an efficacious alkaloid of ergot, is capable of producing serious toxic disturbances usually as a result of overdosage. Chief among these ill effects is gangrene of the extremities.

2 The cause of the gangrene is occlusion of the medium sized and small arteries and arterioles by severe constriction and thrombosis. Intimal proliferation of small arteries may also play a rôle. Hyaline degeneration of the vessels follows the vasoconstriction.

3 The drug probably should not be used in cases of febrile puerperium, in cases of severe toxemia from any cause or in patients who have presented evidence of vascular disease, functional or organic.

4 Except when well established indications for its use arise, the drug should not be employed except by careful investigators who are able to observe constantly their patients.

5 At the present time use of the drug probably should be limited by the profession at large to appropriate obstetric and gynecologic conditions and to the relief of migraine. Taken orally, the drug is less apt to produce toxic effects than when it is injected.

6 When the drug is used, careful watch should be kept for the appearance of any toxic symptoms, including signs of impaired peripheral circulation. On the appearance of these, the use of the drug should be discontinued immediately. Epinephrine and papaverine hydrochloride are suggested for relieving the vascular spasm.

7 In the case here reported a fisherman had a toxemia with jaundice of unknown etiology. Ergotamine tartrate was injected because of pruritus. Within a week 19 cc was used. Gangrene of the feet developed during this time, and amputation of the legs was necessary. Study of the vessels showed the changes due to ergotism. This is apparently the first case of gangrene of the feet due to an ergot preparation in which autograms have been made.

8 The total dosage of ergotamine tartrate administered in this case was larger than should have been employed by hypodermic injection. The only excuse is that the medical resident who ordered the drug was not sufficiently informed concerning its use. Others may be equally uninformed. The attending physician did not know the drug was being used.

9 Not only the Council on Pharmacy and Chemistry of the American Medical Association<sup>30</sup> but also the manufacturers of the material used have repeatedly warned against the dangers of overdosage and prolonged use of the drug.

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## GANGRENE AND DEATH FOLLOWING ERGOTAMINE TARTRATE (GYN- ERGEN) THERAPY

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In view of the recent increasing use of ergotamine tartrate (gynergen) in clinical medicine the following case report suggesting some of its possible dangers may be of interest.

#### REPORT OF CASE

*History*—M I, a white woman, aged 52 a housewife was admitted to the Medical Service of the William J. Seymour Hospital Sept 5 1935. Her chief complaints were hematuria, urgency of urination and weakness. Her present illness began

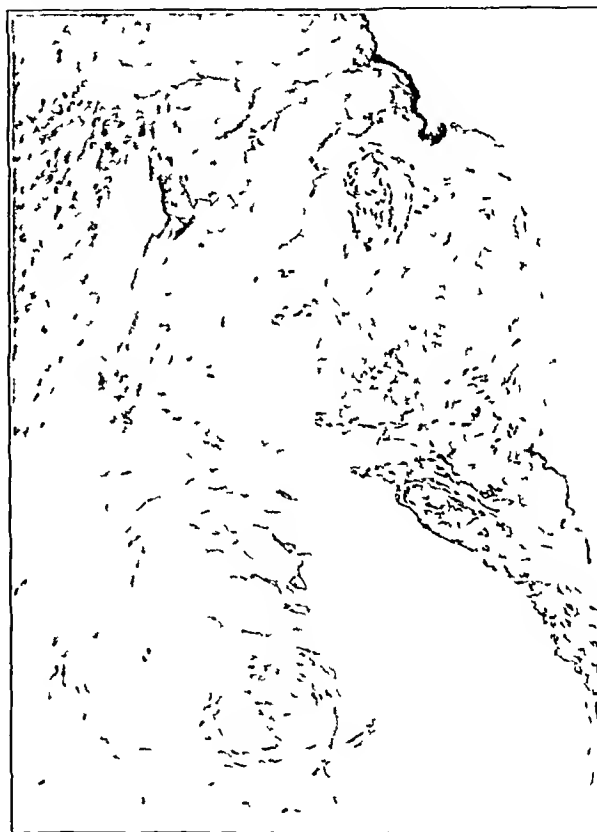


Fig 1—Arterioles, venules and capillaries of epicardium.  $\times 90$

four weeks before admission at which time in a suicidal attempt the patient swallowed 200 grains (13 Gm) of barbital. She was taken to the Detroit Receiving Hospital where she remained for four weeks. During this period she developed hematuria and urgency of urination but these symptoms disappeared soon after her admission to this hospital. The weakness was of two years duration and was associated with numbness and tingling of her upper and lower extremities. Her past history was negative except for a weight loss of 40 pounds (18 Kg) during the past three years, an appendectomy and a right oophorectomy in 1917 and a left oophorectomy and a hysterectomy in 1927.

*Examination*—The patient was apathetic and not much ill. The skin was pale and very dry. The hair was coarse and

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<sup>29</sup> Polak E. Experiments on Ergotism. *Casop lek* 63:1409 (Sept.) 1924.

<sup>30</sup> Council on Pharmacy and Chemistry. New and Nonofficial Remedies. Chicago: American Medical Association, 1935, p. 210.

dry with marked thinning. Fundoscopic examination revealed a moderate degree of sclerosis of the vessels. The examination of the heart, lungs, abdomen and pelvis was negative. The blood pressure was 105 systolic, 75 diastolic.

Laboratory examination on admission revealed: Urine specific gravity 1.006, albumin ++, sugar negative, and from 10 to 15 white blood cells. Blood count: hemoglobin 9.2 Gm.,

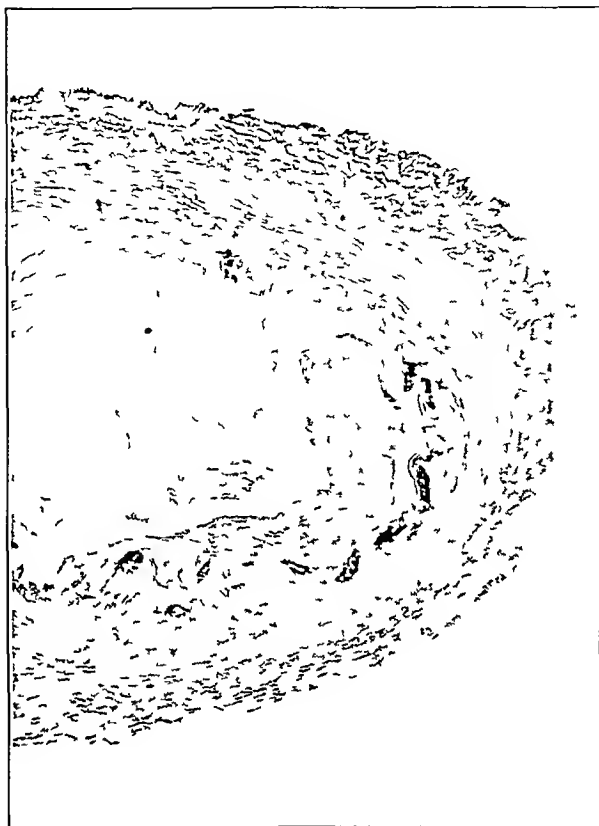


Fig 2—Right femoral artery  $\times 25$

red blood cells 3,460,000, white blood cells 11,800, polymorphonuclears 60 per cent (filamented forms 57, nonfilamented 3), lymphocytes 35 per cent, mononuclears 5 per cent. Gastric analysis was normal except for the presence of red blood cells. Blood Kahn and Kline reactions were both negative. The basal metabolic rate was minus 40 and minus 36 per cent.

**Clinical Course**—The clinical impression was hypothyroidism. The patient was given thyroxin and later thyroid extract under which medication she showed a persistent progressive improvement in both her physical and mental condition and her basal metabolic rate was raised to within normal limits. Her subsequent course in the hospital was uneventful until November 13, when she complained of pain in both hands. The metacarpophalangeal joints were tender. A roentgenographic examination revealed no evidence of bone erosion or loss of joint space. It was believed that the patient was developing an early atrophic arthritis for which she was given injections of neoarsphenamine. December 3 she received 0.15 Gm of neoarsphenamine intravenously and thereafter 0.3 Gm every fourth day for five injections. December 18 the sclerae developed an icteric tint. The liver was not palpable. On the following day there was diffuse icterus. Neoarsphenamine therapy was discontinued, the patient was given sodium thio sulphate and dextrose intravenously and placed on a high carbohydrate and high calcium diet. December 20 the blood showed an icterus index of 66, an immediate direct van den Bergh reaction and a serum bilirubin of 15 mg per hundred cubic centimeters of serum. It was believed that the patient had developed toxic liver damage secondary to the neoarsphenamine. December 24 there was a slight trace of urobilinogen in the urine. The serum bilirubin was 25 mg per

hundred cubic centimeters. December 30 albuminuria was ++++. The icterus index rose progressively. X-ray studies showed no evidence of disease of the gallbladder, esophagus, stomach or duodenum. Because of pruritus the patient was given an ampule of 0.5 cc 1:2,000 (0.25 mg) ergotamine tartrate (Gynergen) subcutaneously December 28 and thereafter one ampule daily up to and including December 31, receiving a total of four ampules (1 mg). On December 29 following the second injection, the patient began to complain of pain and coldness in her legs. Her temperature was 100.5 F. December 30, examination disclosed cyanosis, coldness and impaired sensation of the lower two thirds of both legs. A light cradle was placed over her lower extremities. On the morning of December 31 there was definite bluish mottling of the lower two thirds of both legs. Both hands were cold and cyanotic. Pulsation of the dorsalis pedis and radial arteries could not be felt, nor was a blood pressure reading obtainable. Pulsation of the posterior tibial and popliteal arteries was barely palpable. The heart sounds were regular and of fair quality. Examination of the fundi revealed definite narrowing of the arteries with arteriovenous compression which was not present when she was examined on admittance. Gynergen was now suspected of being the cause of the gangrene. Surgical consultation recommended conservative measures. Accordingly the patient was given vasodilators consisting of glyceryl trinitrate and amyl nitrite, along with strychnine sulfate. Passive vascular exercise was attempted but could not be continued because of mechanical difficulties. The appearance of the upper extremities improved. The legs, however, became progressively more involved until there was blackness of the lower two thirds

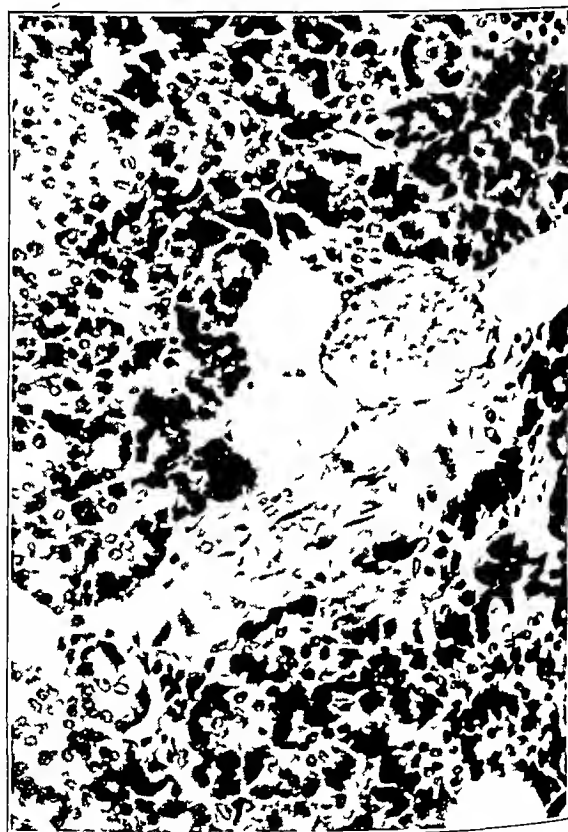


Fig 3—Arteriole and capillary pancreas  $\times 200$

with maceration of the skin. Despite the administration of amyl nitrite and glyceryl trinitrate no definite dilatation of the vessels in the fundi could be demonstrated. The patient's general condition became progressively worse. She became semistuporous and dyspneic and died Jan 1, 1936, at 3 p.m. Terminally there was a temperature elevation to 101.4 F.

**Autopsy**—This was performed one hour after death (H I G). The body was emaciated and markedly jaundiced.

There was a symmetrical, dry gangrene of the lower two thirds of both legs, with some maceration of the overlying skin. Both hands were cyanotic. The thyroid was markedly atrophic. The heart weighed 240 Gm and was of normal color. The coronary arteries and their branches were definitely narrowed. The wall of the aorta appeared somewhat thickened and bile stained. There was atherosclerosis with incomplete thrombosis



Fig 4—Lung arteriole  $\times 135$

of the right femoral artery just above the level of the knee. No other peripheral vessels were removed. The trachea contained some grayish mucoid material. The mucosa was not inflamed. The left lung weighed 240 Gm and showed evidence of passive congestion at the base. The right lung weighed 390 Gm and had some pleural adhesions at the base posteriorly. The liver showed diffuse, yellowish discoloration and marked passive congestion. The spleen weighed 150 Gm and showed passive congestion. The gallbladder contained about fifty small black soft calculi with some stringy mucoid bile. The common bile duct was patent and free from external compression. The pancreas was bile stained but otherwise normal in appearance. The right kidney weighed 120 Gm, the left 100 Gm. The uterus, ovaries and appendix were absent. Permission for examination of the brain was not obtained.

The anatomic diagnoses were parenchymatous degeneration of liver with jaundice (arsenical?), gangrene of lower two thirds of both legs, atherosclerosis of right femoral artery with partial recent thrombosis in its lower third, atherosclerosis and calcification of the abdominal aorta, narrowing of the coronary arteries, general passive congestion, atrophy of thyroid, (cardiac failure, acute ergotism?).

On microscopic examination (S I G) the tongue showed some fatty infiltration of the musculature. The sections of the lungs showed patchy areas of atelectasis and early fibrosis containing many thickened and narrowed arterioles. The myocardium showed slight to moderate myocardial hypertrophy and slight fatty infiltration. There was necrosis of the liver parenchyma which involved principally the central portion of the lobules. The Kupffer cells contained bile pigment deposits. There was marked passive congestion the blood sinuses and

the capillaries being dilated and filled with blood. Lymphocytic infiltration was present in the peribulbar and subcapsular stroma. The pancreas was the seat of marked passive congestion and a moderate degree of fatty infiltration. A lymph node (hepatic) showed lymphoid hyperplasia and dilatation of the blood and lymphatic capillaries. In the kidneys there was some atrophy, a moderate degree of passive congestion, cloudy swelling of the tubular epithelium, bile pigment casts within the tubules, and some glomerular scarring. The blood vessels showed the following changes. The coronary artery and its branches in the epicardium and myocardium showed thickening of the walls with prominence of the fibers of the media. The endothelial cells were conspicuous and the lumens of the vessels were narrowed. The coronary veins were widened and largely empty. In the media of the aorta there was an area of perivascular lymphocytic infiltration. The adventitia showed dilatation and congestion of the capillaries. The endothelium was actively proliferating and there was perivascular lymphocytic infiltration. The arterioles of the lungs were many, their walls were thickened on an average to about twice the diameter of the lumens. In a number of these vessels the lumen was reduced to a slit. The arterioles of the pancreas, kidney, liver and lymph node were definitely thickened, but to a lesser extent, the walls being about half the diameter of the lumens in these locations. The capillaries of the pancreas were greatly dilated and engorged with blood. The veins appeared dilated. There was prominence of the endothelium of all the blood vessels of the pancreas. A section of skin taken from the lower part of the right thigh showed in the corium many dilated capillaries with endothelial proliferation and some perivascular lympho-

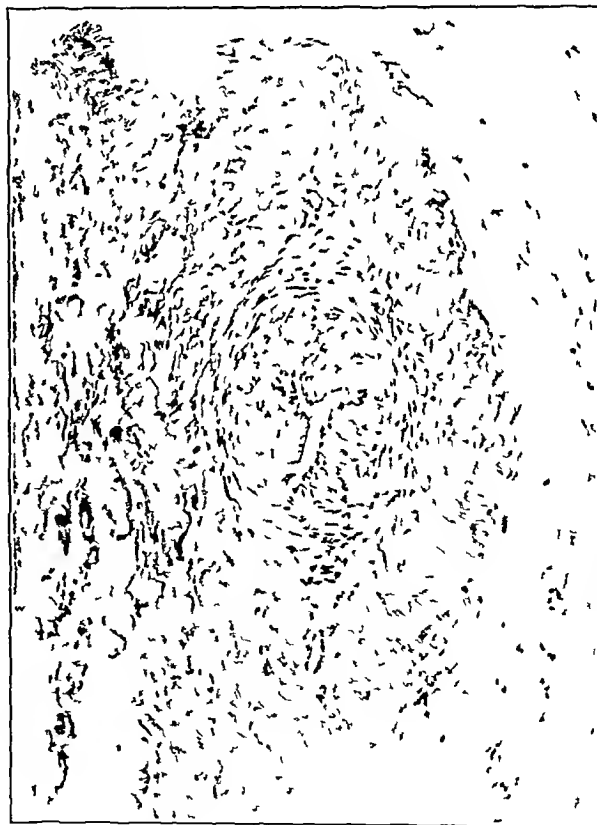


Fig 5—Arteriole  $\times 90$ , branch of right femoral artery

cytic infiltration. The walls of the femoral artery were thickened. The adventitia contained numerous dilated capillaries with proliferating endothelium and some perivascular lymphocytic infiltration. There was moderate calcification of the media and a large fragmented subintimal atheroma undergoing hyalinization. An area of lymphocytic infiltration was present between the media and the atheroma. The lumen was narrowed. Although the atheroma was fragmented no recent

thrombus was seen. In one section there was adjacent to the femoral artery an arteriole of medium size, which showed marked thickening of its walls to about three times the diameter of the lumen. Its endothelial cells were conspicuous.

#### REVIEW OF LITERATURE

Saenger<sup>1</sup> reviewed the reports by various authors of thirteen cases of gangrene that developed in women with puerperal sepsis following the oral and intramuscular administration of ergotamine tartrate. The total dose in these patients varied from 65 to 117 mg. Saenger did not definitely state whether the gangrene was due to septic vascular disease or whether puerperal sepsis predisposes women to develop gangrene after ergotamine tartrate therapy. In two cases in which the amputated gangrenous extremities were examined, the only pathologic change demonstrable was a contraction of all the arteries. In a third case there was thrombosis of the femoral vein with purulent thrombophlebitis of the dorsal pedis vein of the same side. In two other instances the patients had complained of paresthesias in the extremities before the institution of gynergen therapy.

Labbe, Besançon and Gouyen<sup>2</sup> reported the unfavorable action of gynergen in patients with exophthalmic goiter. One of their patients a woman aged 49 who

anginal pain. Each attack was more severe and of longer duration than the preceding one. Following the third injection she developed a paralysis of the left arm and left side of the face. The authors attributed the anginal attack to coronary artery spasm and the paralysis to cerebral artery spasm. A second patient, a woman, aged 60, with exophthalmic goiter of moderate severity, was given one injection of 0.5 mg. of

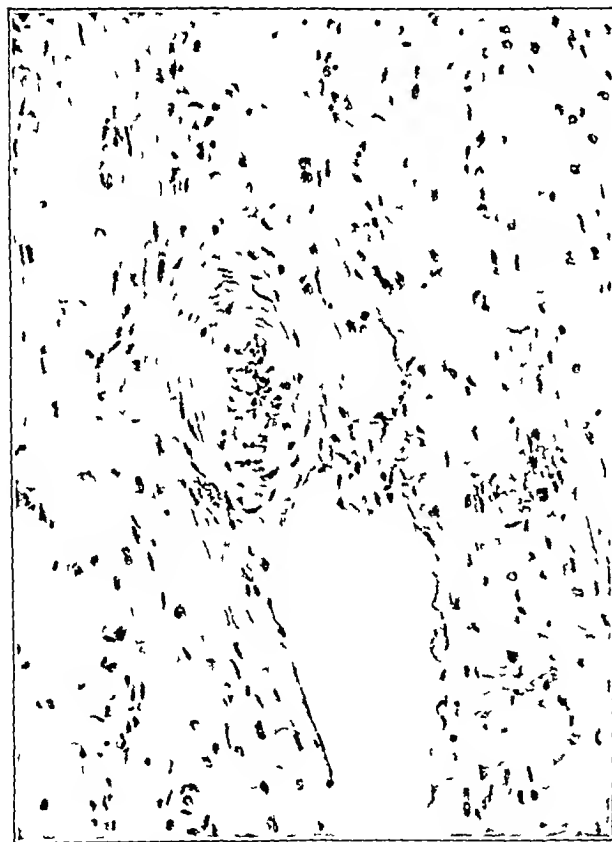


Fig. 6—Coronary arteriole in myocardium  $\times 135$



Fig. 7—Coronary arteriole epicardium  $\times 575$

ergotamine tartrate, which was followed by vomiting. A few hours later she died in syncope. They concluded that patients with exophthalmic goiter are particularly susceptible to the action of ergotamine and that in this disease the drug should be used with extreme caution.

Zimmermann's<sup>3</sup> patient, a woman, aged 43, complained of anginal symptoms and a severe anemia due to uterine bleeding. After one day's complete freedom from the vagina following bed rest she was given an injection of one ampule of gynergen. A few minutes thereafter a prolonged anginal attack occurred, and on the following morning the patient died. On the day prior to the administration of gynergen the electrocardiogram showed some depression of the ST interval in leads 2 and 3. Following the injection, the ST interval showed more marked depression in all leads, being particularly pronounced in lead 2. At autopsy there was found extreme narrowing of the mouths of both coronary arteries due to syphilitic aortitis. The author attributed the fatal status anginosus of this patient to a vasoconstrictor action of the gynergen on the coronary system.

had a severe hyperthyroidism with a basal metabolic rate of plus 108 was given three injections of 0.5 mg. each of ergotamine tartrate. Several hours after each injection she was seized with an attack of severe

1 Saenger H. Leber puerperal Gangran bei septischen Zuständen und Gynergenmedikation. *Zentralbl. f. Gynäk.* 53: 386 (March 9) 1929.  
2 Labbe M., Justin Besançon L. and Gouyen J. Accidents consécutifs au traitement de la maladie de Basedow par le tartrate d'ergotamine. *Bull. et mem. Soc. med. d'hop. de Paris* 53: 429 (April 1) 1929.

3 Zimmermann O. Störung der Coronardurchblutung durch Ergotamin. *Klin. Wchnschr.* 14: 500 (April 6) 1935.

Roch's<sup>4</sup> patient had a fracture of two years' standing of the navicular and calcaneus bones of the left foot, with some residual infection. Following a cesarean operation she developed a septic infection and was given injections of slightly less than 3 mg of gynergen daily for four days. On the third and fourth days she developed pain and pallor in all the extremities. On the fifth day lividity developed in the left foot with an associated coldness and cyanosis. Amputation of the foot was necessary. This author believed that gangrene following ergotamine tartrate therapy may be favored by the presence of infection and possibly "by an alteration of the circulatory parts or a derangement of the vegetative nervous system."

McGrath<sup>5</sup> was able to produce gangrene of the tail in white rats by the injection of ergotamine tartrate, the dosage varying from 25 to 100 mg per kilogram of body weight. Pallor and sensitiveness of the part occurred after three to five days, cyanosis and exquisite pain in from six to nine days, blackening in from ten to sixteen days and demarcation in from seventeen to twenty days. This was followed by sloughing of the gangrenous portion. The injection of theelin following the administration of gynergen was able to prevent the development of gangrene in female rats but not in male rats. Pathologically there was marked cellular proliferation and swelling of the intima which was most evident in the small arteries and arterioles. In some sections the lumens were almost completely occluded. The veins were involved to a lesser extent. The large central artery of the tail, as well as the superficial veins, showed a tendency to thrombosis. McGrath<sup>6</sup> was unable to state the effect of ergotamine on the coronary vessels.

Herrick<sup>7</sup> by the injection of from 0.5 to 1 mg of gynergen intravenously in four dogs found that, on the average, the blood flow in the femoral artery was diminished to 25 per cent of normal. In two other dogs the blood flow was diminished to 57 and 35 per cent respectively.

Pool and Nason<sup>8</sup> by injections of ergotamine in cats were able to demonstrate a constriction of the arteries of the dura and the skin. In the former the average decrease in diameter was 25 per cent, in the latter 39 per cent.

#### SUMMARY

The case herein reported is that of a middle-aged woman who developed gangrene of both lower extremities immediately after the institution of ergotamine tartrate (gynergen) therapy. On postmortem examination all the arterioles examined were found to be contracted. The experimental work of McGrath on rats demonstrating the production of gangrene following the injection of gynergen, suggests the possibility of a similar effect in our patient. The vascular disease present in our case would seem to have predisposed to the development of the gangrene. On the basis of the evidence at hand it is suggested that the use of drugs of this type be avoided in cases of vascular disease such as atherosclerosis, Buerger's disease, coronary sclerosis and atherosclerotic narrowing of the mouths of the coronary arteries.

## THE PROBLEM OF THE SPASTIC CHILD

WITH CLINICAL SUMMARY OF ONE  
THOUSAND CASES

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This paper is the outgrowth of more than a year's study of 1000 cases of cerebral birth hemorrhage treated at the Orthopaedic Hospital during the past twelve years. It represents a statistical summary of the cases seen and is a crystallization of certain ideas regarding the care and treatment of the spastic patient.

The subject of cerebral birth hemorrhage and its sequelae calls for a comprehensive knowledge in such varied fields of medicine and surgery that no one person can be intimately versed in all its ramifications. I think that this is one of the main reasons why the spastic child has been so shunted about and ignored by the medical profession.

Probably the chief pathologic condition found in the first month of life is injury to the brain from hemorrhage. Various reports indicate that one third of the deaths occurring during labor are due to cerebral hemorrhage. In fact, some believe that brain hemorrhage is almost a physiologic condition attending childbirth. In one series of 500 new-born babies, 9 per cent showed bloody spinal fluid, and in a series of Negro babies the percentage was 14. The incidence of retinal hemorrhage runs as high as 20 per cent.

When one considers the factors at work that make possible rupture of the delicate vessels of the brain, it seems likely that the obstetrician has been too severely maligned. Factors over which he has little or no control must be of greater importance than the isolated cases due to unskilled obstetric care. The suction due to negative pressure after rupture of the bag of waters, strangulation due to the cord wrapped around the neck, the overlarge head subjected to prolonged trauma, the small head which does not allow time for sufficient molding are all factors that are largely beyond the control of the medical attendant.

Probably in less than 50 per cent is there a history of long hard labor or the use of forceps and brain hemorrhage has occurred with cesarean section. In the diplegic cases the history of difficult labor is probably less than 30 per cent. In this series there was a history of prolonged labor in 39 per cent, with 32 per cent for the diplegic cases.

It is believed by some, in the case of diplegic paralysis, that hemorrhage may not be the cause of the spasticity and mental deficiency. Since the legs are involved so much more frequently than the arms, they believe that something must have happened to check the completion of the motor pattern in these children. They believe that definite nerve fiber groups receive their myelin according to a definite chronological schedule and that the myelin is laid down through the agency of the blood. A possible theory for this failure of development of the motor pattern is an interference with myelination in the fetus through changes in the blood of the mother from either some toxic or some endocrine disturbance. In support of this view attention is called to the spasticity and alteration of muscle

A symposium on the care of the spastic patient was prepared by various departments of the Orthopaedic Hospital. Lack of space prevents the presentation of all this material but the author wishes especially to mention Dr. George H. Patten on the neurologic, Mrs. Evelyn Tippet on the psychologic and Miss Ruth Ann on the physical therapy department and to acknowledge free use of the material presented in their papers.

<sup>4</sup> Roch M. Ergotisme gangreneux. *Presse med* 43 31 (Jan 5) 1935.

<sup>5</sup> McGrath E. J. Experimental Peripheral Gangrene. Effect of a Tropic Substance and Its Relation to Thrombo-Angitis Obliterans. *Arch Int Med* 35 942 (June) 1935.

<sup>6</sup> McGrath E. J. Experimental Peripheral Gangrene. *J A M A* 107 854 (Sept 14) 1935.

<sup>7</sup> Herrick J. I. Effect of Ergotamine Tartrate on Blood Flow and Blood Pressure in Femoral Artery of the Dog. *Proc Soc Exper Biol & Med* 30 871 (April) 1933.

<sup>8</sup> Pool J. I. and Nason C. I. Cerebral Circulation. Comparative Effect of Ergotamine Tartrate on the Arteries in Pith, Dura and Skin of Cats. *Arch Neurol & Psychiat* 33 276 (Feb) 1935.

tone that develops in multiple sclerosis when there is loss of myelin sheath that leaves the axis cylinders bare. In support of this view also is the observation in the study here presented that 43 per cent of the patients showed definite endocrine disturbance.

In the accompanying table are given data gathered from this study of 1,000 cases. Because of the size of the series it should be of interest and value to those who are interested in the problems of cerebral birth hemorrhage.

#### EARLY TREATMENT

The early treatment after birth comes largely within the scope of the neurosurgeon. Early surgery to relieve the hemorrhage has not been very successful. The reason for this, of course, is that too often the hemorrhage is so located that it is inaccessible to surgical approach or the hemorrhage is diffuse and widely separated, and the mortality rate is high. However, many men with experience are reporting worthwhile results from frequently repeated spinal punctures until the fluid is free from blood. In case of dry puncture some men have claimed good results with cisternal puncture.

#### LATER TREATMENT

Usually the patient does not come to the attention of the orthopedist until the mother notices that the child is not developing as it should. It has been our experience that very little is done for these children during the first few years of life. Even if the mother consults a physician, seldom is an adequate regimen outlined for the parents. Too often they are dismissed with some brief, perfunctory advice, with the result that the parents consult the irregular practitioners of medicine.

Even before the child is old enough to sit or stand there are definite things to be outlined for the parents until it is old enough to benefit from more formal training under direct supervision. But first the physician must have a clear conception in his own mind of what he is trying to accomplish. He must realize that the spastic child lives largely through his senses of sight and hearing, his muscular or motor expression being considerably limited. Yet it is a biologic law down through the ages that man has grown mentally in direct ratio to the skill he has developed in the performance of constructive motor activities. The spastic child is incapable of expressing in a motor way the ideas of his sensory world. His poor coordination is thus made worse, owing to the accumulation of energy, which is spilled over into vicarious channels. No wonder, then, that these children are usually underrated mentally and that so much pessimism prevails. It explains also why so many of these patients improve mentally as their physical handicap improves through training and surgery.

One of the reasons why treatment of these patients has not been more successful is that those in charge of these patients have approached their problem from too narrow a point of view. As mentioned earlier, adequate coping with this problem can be met only by the combined resources of knowledge from several special fields of medicine. We long ago recognized that a team of workers was necessary, a skilled team that was sympathetic with the special needs and requirements of the spastic child, if he was to receive the maximum that medical science has to offer.

It is true that some orthopedic institutions and orthopedic specialists are interested mainly in the surgical aspect of the problem and pay too little attention to the

#### Statistical Summary of One Thousand Cases of Cerebral Birth Hemorrhage

Age (entered clinic)	69 yrs
Males	57%
Females	43%
Monoplegic paralysis	8.57% {Arm 3.7% Leg 6.7%}
Hemiplegic paralysis	39.4% {Right 17% Left 41%}
Diplegic paralysis	23% {Arm 7% Leg 9%}
Triplegic paralysis	1.8%
Quadriplegic paralysis	28%
Myasthenia	1.2%
Average I Q rating 70.7	{ Monoplegia 89 Hemiplegia 80.1 Diplegia 74 Triplegia 84.2 Quadriplegia 77.1
Type of labor	{ Normal 56% { Monoplegia 10% Hemiplegia 6% Diplegia 6.7% Triplegia and Quadriplegia 4% Precipitate 5% { Monoplegia 10% Hemiplegia 4% Diplegia 4% Triplegia and Quadriplegia 1% Prolonged 39% { Monoplegia 40% Hemiplegia 37% Diplegia 3% Triplegia and Quadriplegia 10%
Associated conditions	{ Contractures 30% Athetosis 8% Ataxia 5% Speech defects (after 6th yr) 15% Chorea 0.7% Epilepsy 18% Hydrocephalus 1.2% Microcephalus 0.9% Monoplegia 8.4% Hemiplegia 29% Diplegia 29% Triplegia and Quadriplegia 30.8%
Average age first walked alone 2.8 yr (with or without braces)	{ Monoplegia 1.5 yr Hemiplegia 3 yr Paraplegia 0.9 yr Triplegia and Quadriplegia 3.7 yr
Medical treatment (endocrine and other treatment)	4%
Shoeing (exclusive of bracing)	3%
Bracing	9%
Surgery total number of operations 542	{ Spinal fusions 2 Ramsdorn's 13 Upper extremities 6 Lower extremities 47
Surgery upper extremity 63 operations	{ Neurectomies 6 Shoulder tenotomies 1 Elbow tenotomies 2 Transplant and tenotomy pronator teres 2 Wrist transplants 13 Wrist arthrodeses 9 Underslung thumb deformity 1 Finger transplant 1
Surgery lower extremity 457 operations	{ Femur torsion osteotomy 1 Hip closed reduction 5 Hip shelf operation 11 Adductor tenotomy and neurectomy 8 Hip flexion deformity 11 Knee muscle transplant (weak knee extensors) 11 Knee flexion deformity 8 Tibial osteotomy (knock knee and torsion) 37 Neurectomy (gastrocnemius muscle) 11 Heel cord plastic lengthening 6 Heel cord plastic shortening 6 Tarsal arthrodesis 23 Transplants for valgus foot deformity 4 Transplant for varus foot deformity 7 Flat foot operation 2 Bone block for equinus deformity 20 Plantar fasciotomy 3 Hammer toe 1 Toes transplants for flexion and extension deformity 7

mental, recreational, speech and physical therapy training. On the other hand there are no end of schools for spastic patients that center all their effort in physical therapy training. Many of these schools are manned by competent individuals, at least competent



in their special field, but they largely or entirely overlook the surgical and bracing opportunities that may be staring them in the face

These schools will diligently and often expertly train their patients toward better balance and coordination, entirely ignoring contractures that are defeating their efforts. These patients already have difficulty in balance, and unless the flexion deformities of the hips and knees and the equinus deformities of the feet are first corrected by surgery and adequate bracing, they are fighting an uphill battle all the way

In an attempt to open up and develop every possible avenue of approach, the Orthopaedic Hospital has developed a team which we believe indispensable if the maximum end results are to be obtained

#### ROLE OF THE TEAM MEMBERS

*The Orthopedic Surgeon*—In this team the orthopedic surgeon is in charge. He makes the initial examination. He evaluates the surgical and bracing possibilities and sees that the patient reaches the various consultants who may be of help

*The Medical Consultant*—On this team is a medical consultant with an interest and training in endocrinology, since a great number of these patients have an accompanying glandular disturbance. Many also have disorders of digestion and elimination and faulty diet habits. Those having foci of infection are referred to the proper department for correction, as an attempt must be made to relieve these patients of every extraneous physical load

*The Dentist*—Because of their poor mastication, many have dental caries and poor occlusion requiring dental care

*The Psychologist*—A very important member is the psychologist, who has had special training with spastic children. He or she can give valuable information on the intellectual level of the patient, his psychomotor skill, his personality deviations and the training possibilities and he has charge of the mental training. The psychologist is in a position to study personal preferences, desires and ambitions. Thus this department has helped to put the physical therapy training on a sounder psychologic basis. While the exercises attempt to follow definite laws, yet if the desired activity is coordinated with an already discovered ambition—with play, rhythm, music or a definite comprehensible goal in the mind of the child—we have found an unexpected interest that indicates the point of departure toward the next stage of mental training. Many cases could be cited in which there has been a marked improvement in the intelligence quotient rating, accelerated and improved motor function and awakening of the child's interest through the training received in this department. The spastic child is apt to meet frustrations with tantrums. This display of temper and ineffectual response can be altered and improved by the alert psychologist

*The Neurosurgeon*—The neurosurgeon has a definite and useful place on this team. All cases are referred to him for routine examination and to clear up doubtful diagnoses. From this group there will be a small number which will require special neurologic study, consisting of spinal punctures, encephalographies, crural exploration, section of the skull for hydrocephalus, and spinal and ventricular studies for hydrocephalus. The neurosurgeon is in a position to estimate the amount of brain damage and its localization more accurately than others who are not particularly inter-

ested in the structure and pathology of the nervous system. In a few cases in which there were localized adhesions and cysts associated with epilepsy, brain surgery has given definite and worthwhile improvement. Cases of hydrocephalus that show x-ray evidence of increased intracranial pressure are recommended for section of the skull to provide for expansion

#### PHYSICAL THERAPY AND OCCUPATIONAL THERAPY DEPARTMENTS

The physical therapist carries on the work of teaching relaxation, rhythm of motion and gait training. Practically all patients pass through this department, since training of the extremities toward better functional use constitutes a large part of the patient's regimen. The results obtained will depend to a great degree on the skill, resourcefulness, personality and enthusiasm of the technician. Our experience has demonstrated that intensive training is justly rewarded, provided we have a child of from fair to normal intelligence

The primary aim is to teach relaxation, to teach the patient to do simple things without becoming tense and excited. With the young we start first with the grosser motions of the larger joints, having the mother, in a spirit of play, repeat the motions over and over until the motor pattern becomes fixed

With the spastic child, even a simple motor act such as reaching for a toy may be a major undertaking. Unlike the normal child, who automatically and without effort uses only the muscles necessary for the act, the spastic child may put all four extremities into play. The object is to teach him to inhibit those muscles not necessary and use smoothly only those necessary for that particular act

Since we know in advance that certain contractures are apt to occur, we can design exercises that will tend to overcome these overactive muscles. This will mean motions of abduction and external rotation of the shoulder, extension of the elbow, extension of the wrist and fingers, abduction of the thighs, extension of the knees and dorsiflexion of the feet. These simple exercises can be carried out by the mother until the child has advanced sufficiently mentally and physically, to benefit by more formal exercises of coordination and gait training in the gymnasium and the warm pool

The work in the occupational therapy department is of similar character but it has certain advantages in that this type of training seems more like play; it is possible to give greater latitude to the child's preferences and it carries with it the appeal of achievement, an urge to create and the praise that goes with a piece of work well done

#### SPEECH TRAINING

In this study about 15 per cent showed speech defects after the sixth year. We have usually begun the speech training with the psychologist along with the mental training. The desire to talk is inherently strong within every one having any degree of intelligence and we have only to search for a sufficiently powerful motive to effect our purpose. Later when the child has improved through surgery and training, he may be given formal speech training, because now the energy formerly expended in uncontrollable physical motion is available for articulation

That speech training must be a very necessary part of the training is indicated by the fact that even normal children with speech defects are apt to develop peculiarities of personality and unsocial tendencies. Those

trained in speech work can cite many cases of marked improvement in school work and increase in the intelligence quotient from 10 up to as high as 30 per cent after the speech defect has been overcome. Dull normal children have become normal and suspected high grade morons have become dull normal persons.

#### THE SURGICAL AND BRACING ASPECT OF THE PROBLEM

It is unfortunate that so many men feel that surgery and bracing play such a small part in the rehabilitation of the spastic child. That it must be a very important part of the problem is indicated by the fact that, in this series of 1,000 cases, 542 surgical operations were performed, in 38 per cent braces of some sort were worn during part of the treatment, and shoe corrections without braces were worn in 28 per cent of the cases. It must be borne in mind that these figures are from an institution which believes and practices that all available avenues of approach must be made use of if the spastic child is to receive the best there is to offer.

It is a common experience in this institution for the physical therapy department to comment on the better results that exist after contractures and overactive muscles are improved through surgery and bracing. The uphill battle has been made lighter and the patient makes faster progress in balance and walking.

I feel that bracing has a very definite place in the treatment of these cases and believe that the use of braces is founded on sound physiologic principles. In the first place they help to stretch the overactive muscles continuously. Secondly, they minimize the number of joints that are brought into play when walking, so that the child just beginning to take steps can focus his attention on fewer moving parts. At the same time they cut down on the number and degree of excursion of vicarious, incoordinated motions when a voluntary act is attempted. Even after surgical procedures such as neurectomies and operations to lengthen short tendons, the overactive muscles will again bring about the original contracture if they are not kept stretched for a long period in braces.

In this series it will be noticed that 457 of the total of 542 operations were performed on the lower extremities. This preponderance of surgery on the legs and feet is accounted for in part by the fact that the lower extremities are more frequently involved, but chiefly it is due to the fact that the surgeon is more concerned, and rightly so, with making a bedridden or wheel-chair patient walk than he is with increasing function of the arms and hands. Not only does this make a lighter burden for the parents but it changes the whole life of the individual and adds a tremendous impetus in the desire to make further improvement.

Experience has shown that some of the operative procedures have not stood the test of time. In the first place it may be mentioned that transplants of spastic muscles are in general disappointing. Tenotomies and plastic lengthening of tendons are usually more satisfactory than neurectomies. Time has shown that little or nothing was accomplished by ramisection, which were so in vogue a few years ago.

An examination of these patients made it apparent that the possibilities for improvement in the upper extremity were being somewhat neglected, and examination of patients from other clinics indicates that this is a common tendency. The flexion contracture of the hand and fingers yields to continuous stretching in plaster splints, and if accompanied and followed by training the function of the hand can be greatly

improved. The milder pronation contractures of the forearm likewise yield and improve with stretching in plaster, and the severer ones are greatly benefited by transplant of the pronator teres muscle so that contraction of this muscle effects a supination action. Fusion of the wrist is often a very useful measure, provided the fingers have sufficient grasping function. The underslung thumb deformity in which the thumb opposes across the palm in the way of the other fingers when an attempt is made to make a fist is very annoying. I have tried various transplants without marked benefit. Now I do a complete or partial resection of the nerve supply to the opponens or short flexor muscle of the thumb, followed by immobilization in an attitude of abduction, an operation that has given fair success.

Tenotomies of the adductor muscles of the thigh and neurectomy of the obturator nerves for overactive adductors and scissor gait are operations that have stood the test of time. Overcoming the flexion contracture of the knees, in the milder cases by wedging casts and in the severer cases by capsulotomies, will always be a valuable measure, and it enhances the training possibilities. To improve balance, lengthening of short heel cords followed by bracing is always good surgery.

In my hands, partial or complete resection of the nerve supply to the gastrocnemius muscles for overactive calf muscles without actual shortening has not given as good results as stretching and bracing. Stabilization operations for deformed feet and feet exhibiting uncontrolled, purposeless motions are of definite value. The patient is given a more secure foundation and the thrust of the foot against the ground in walking becomes greater and the force is better controlled after such an operation. Certainly surgery has a prominent place in the rehabilitation of these patients.

#### COMMENT

Given a child of fair mentality, an intelligence rating of 80 or above, a great deal can be done for these spastic patients under the regimen outlined. In addition to the surgical and training aspect of the problem, one must be alert to the social and economic problems of patients. Because of their limited means of self-expression, reticence and inferiority complexes, opportunity should be provided for supervised play and recreation. Formation of self-governing social clubs offer an opportunity for leadership. Drama, music, dancing, art and study clubs are all a vital part of the regimen to round out properly the whole life of the individual. Vocational and scholastic training to prepare the patient for a life's job, within the mental and physical limits of the individual, must be provided. After all, the ultimate objective is not merely to correct and improve deformed bodies but to give to society, as far as possible, a reliant, useful and self-supporting citizen.

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**Muscular Tension When at Rest**—When a person loses weight because of worry or of mentally or nervously hard work, it may be largely because of increased muscular tension, not only during the day but also during the night when there is less sound sleep and often also because under nervous tension the appetite may be diminished or the digestion disturbed. Even when we are, as we say, completely at rest there is still tension in all our muscles and a large amount of energy is being spent in maintaining this muscular tension even when it is involuntary and unconscious.—Sherman, H. C. Food and Health New York, Macmillan Company, 1934.

THYROIDECTOMY FOR ANGINA  
PECTORISA CASE OF ANGINA PECTORIS ASSOCIATED WITH  
NONTOKIC GOITER RELIEVED BY TOTAL ABLA-  
TION OF THE LEFT LOBE OF THE  
THYROID GLAND

J DEWEY BISGARD, M.D.

OMAHA

Recently there have been published several reports<sup>1</sup> of observations that extend over a period of one year or more on cases treated by total ablation of the normal thyroid gland for angina pectoris and congestive heart failure, unrelated to thyroid disease. The rationale of the treatment is based principally on the results of an experimental investigation carried out by Blumgart and his associates,<sup>2</sup> by which were confirmed certain impressions that had been deduced by many clinicians from the common clinical observation of the change in circulation and cardiac function brought about in thyrotoxicosis by spontaneous, iodine or surgical remission, and in myxedema by thyroid feeding. They demonstrated that the velocity with which blood circulates varies rather constantly with the metabolic rate

and is therefore dependent on the metabolic demands of the body. Furthermore they observed that blood flows much more slowly than normal in cases of cardiac failure which present normal basal metabolic rates. It was reasoned therefore, that a heart in congestive failure (because it was unable to meet the normal metabolic demands) might establish equilibrium between supply and demand and carry on in compensation at the subnormal metabolic level which results from total thyroidectomy. Furthermore, the same reasoning seemed applicable to cases of angina pectoris as a means to lessen the load on a heart crippled by an impairment of its coronary circulation. This concept had certain clinical precedent. There are on record rare cases in which angina pectoris coexisting with thyrotoxicosis has been relieved by subtotal thyroidectomy. Conversely, patients with myxedema occasionally develop for the first time signs of cardiac failure or of angina pectoris after the administration of thyroid extract and are relieved only after this therapy has been discontinued or quantitatively reduced.

As cases were investigated in which total thyroidectomy had been done, certain interesting facts developed. Among these was the observation that the metabolic rate fell slowly, showing no appreciable reduction for a week or more and that symptoms of myxedema did not appear until from four to eight weeks after operation. And yet the patients with angina pectoris who were benefited experienced relief from anginal attacks immediately after operation, weeks before the metabolic demands on the heart had been lessened significantly.

It is in respect to this problem of the mechanism by which total thyroidectomy relieves angina pectoris that the following case is reported also worthy of record are certain unusual features that the case presents.

**History**—J. W., a farmer, aged 67, who had always lived in a nongouty region stated that until two years before admission he had always had excellent health. For twenty years he had had a goiter but in his history there was no evidence that he had ever had symptoms of hyperthyroidism. The goiter had not changed appreciably in size, but for four years he had noticed pressure symptoms of choking when he turned his head to the right, and particularly so in recumbency.

For two years he had had attacks of sharp precordial pain which radiated into the left side of the neck and to the top of the left shoulder. With the pain there was a sense of compression of the chest inability to breathe and anxiety. The attacks were invariably initiated by exertion and excitement and were particularly prone to occur with exertion immediately following a meal. They had become progressively more frequent and more severe until they completely incapacitated him. For three months he had taken glyceryl trinitrate, which gave him immediate and complete relief.

**Physical Examination**—The patient was well developed and nourished was 6 feet (183 cm.) tall weighed 192 pounds (87 kg.) and appeared younger than the stated age. The exposed skin surfaces were tanned very deeply and the lips were slightly cyanosed. There was some porphyria alveolaris.

Protruding in the neck was an obvious goiter, which to palpation involved both lobes was firm nodular and freely movable and in the aggregate was the size of a large orange. Both lobes appeared to extend subternally.

The chest was barrel shaped, the lungs were emphysematous with a few atelectatic rales at both bases and the heart was normal in size and rhythm with a rate of 60 (resting) and a systolic murmur heard over the entire base. To the left of the sternum and extending from the nipple up over the shoulder and base of the neck was an indefinite band of hyperesthesia and hyperalgnesia. There was moderate arteriosclerosis and the blood pressure was 132 systolic 75 diastolic. The reflexes were normally active and the remainder of the examination was negative.

## 1 These include

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- Blumgart H. L., Riseman J. E. F., Davis David and Weinstein A. A. Treatment of Angina Pectoris and Congestive Heart Failure by Total Ablation of Normal Thyroid. Results in Arteriosclerotic Heart Disease. *Am. Heart J.* 10: 596 (June) 1935.
- Cutler<sup>14</sup>.
- Levine and Eppinger<sup>10</sup>.
- Berlin<sup>1</sup>.
- Berlin D. D. and Blumgart H. I. Treatment of Chronic Intractable Heart Disease by Total Thyroidectomy. *New York State J. Med.* 34: 1047 (Dec 15) 1934.
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- Brenner O., Donovan H. and Murrigh B. L. S. Total Thyroidectomy in Treatment of Patients with Congestive Heart Failure and Angina Pectoris Without an Anesthesia. *Brit. M. J.* 2: 624 (Oct 6) 1934.
- Cutler and Schmitzer<sup>1</sup>.
- Levine S. A., Cutler E. C. and Eppinger E. C. Thyroidectomy in the Treatment of Advanced Congestive Heart Failure and Angina Pectoris. *New England J. Med.* 209: 667 (Oct 5) 1935.
- Louise O. R. Is Total Thyroidectomy Rational as Method of Treatment? *Canad. M. A. J.* 31: 502 (Nov.) 1934.
- Mixter C. C., Blumgart H. L. and Berlin D. D. Total Ablation of the Thyroid for Angina Pectoris and Congestive Heart Failure. *Ann. Surg.* 100: 570 (Oct.) 1934.
- Arnulf C. Total Thyroidectomy in Therapy of Decompensated Cardiopathies Without Thyrotoxicosis. *Presse med.* 42: 2044 (Dec 19) 1934.
- Berlin D. D. and others. Treatment of Angina Pectoris and Congestive Heart Failure by Total Ablation of Normal Thyroid Gland. *New England J. Med.* 211: 683 (Nov 8) 1934.
- Blumgart H. L., Levine S. A. and Berlin D. D. Congestive Heart Failure and Angina Pectoris. Therapeutic Effect of Thyroidectomy on Patients Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch. Int. Med.* 51: 866 (June) 1933.
- Blumgart H. I., Riseman J. E. F., Davis David and Berlin D. D. Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris. *ibid.* 52: 165 (Aug.) 1933.
- Blumgart H. I. Surgical Treatment of Chronic Heart Disease by Complete Removal of the Normal Thyroid. *Pennsylvania M. J.* 38: 309 (Feb.) 1935.

## 2 These studies include

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- Blumgart H. I. and Weiss Soma. Studies on the Velocity of Blood Flow. Pulmonary Circulation Time in Normal Resting Individual. *ibid.* 4: 399 (Aug.) 1927.
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- Blumgart H. I. and Weiss Soma. Circulation in Myxedema with a Comparison of the Velocity of Blood Flow in Myxedema and Thyrotoxicosis. *ibid.* 9: 91 (Aug.) 1910.
- Blumgart H. I. Studies on Velocity of Blood Flow and Other Aspects of Circulation in Patients with Primary and Secondary Anemia and in Polycythemia Vera. *ibid.* 9: 179 (Feb.) 1931.
- Blumgart H. I. The Velocity of Blood Flow in Health and Disease. The Velocity of Blood Flow and Its Relation to Other Measurements of Circulation. *Medicine* 10: 1 (Feb.) 1931.

**Laboratory Examination**—The urine was acid, had a specific gravity of 1.020 and contained no sugar or albumin, the sediment was negative. The blood showed hemoglobin 90 per cent, red blood cells 5,200,000, white blood cells 5,800, and a differential of 64 per cent polymorphonuclear leukocytes and 36 per cent lymphocytes. The basal metabolic rate was minus 32, and because this initial reading was so low as to cause doubt of accuracy the test was repeated with the result of minus 28. The electrocardiogram was normal except for the bradycardia. Fractional gastric analysis gave normal values for both free and total acid. Blood cholesterol was 173 mg per hundred cubic centimeters, blood chlorides 421 mg, and fasting blood sugar 104 mg. Dextrose tolerance was reduced, the readings are given in the accompanying table with those obtained after operation.

**Operation**—Feb 21, 1935, with local infiltration anesthesia, both lobes of the thyroid gland were exposed and found to have large substernal prolongations. Both were made up of adenomatous nodules many of which were cystic, and the left lobe was extensively calcified. The right lobe was removed subtotally, leaving only a small remnant, but the left lobe was totally removed, leaving no thyroid tissue whatever on the left side of the trachea. Microscopic changes in the tissue confirmed those apparent in gross examination.

**Postoperative Course**—The patient had an uneventful convalescence and from the day of operation until the present writing, a period of eleven months, he has had no attacks of

Dextrose Tolerance Curves

	Before Operation, Mg per 100 Cc	After Operation	
		2 Weeks Mg per 100 Cc	6 Months Mg per 100 Cc
Fasting	104		76
1st half hour	213	177	156
2d half hour	292	248	163
2d hour	332	280	199
3d hour	291	160	121
4th hour	193	120	142

angina pectoris such as he had before operation. On rare occasions and then only with excessive exertion, he has experienced some slight substernal discomfort. Whereas he was completely incapacitated before operation, he has engaged daily in light work on the farm during the past nine months. The area of hyperesthesia and hyperalgesia over the precordium and shoulder noted before operation disappeared immediately after operation and to the present has not returned.

Curiously two weeks after operation, the basal metabolic rate was minus 18 and the dextrose tolerance curve was relatively normal. The blood cholesterol was 152 mg per hundred cubic centimeters and the fasting blood sugar 76 mg. The tolerance curve is given in the table. Six months after operation the basal metabolic rate was minus 5 per cent and the dextrose tolerance as given in the table.

## COMMENT

As was stated previously, it has been observed constantly that relief in cases of angina pectoris occurs immediately following total extirpation of the thyroid gland. This occurs as has been shown by Levine and Eppinger<sup>3</sup> and by Blumgart and his associates,<sup>4</sup> several days before there has been an appreciable reduction in the basal metabolic rate, in the velocity of blood flow and presumably in the quantity of circulating secretion of the thyroid gland. This immediate relief is attributed by Weinstein and Berlin and their associates,<sup>5</sup> to inter-

ruption of "cardiac afferent nerve pathways" or "afferent nerve impulses from the heart" at the time of operation. They support this hypothesis by observations in nineteen cases in which they were able to demonstrate partial or complete disappearance immediately after operation of both nonanginal precordial pain and of preoperative areas of skin hyperesthesia and of muscle and periosteal hyperalgesia of the chest wall. After from two to four weeks these signs reappeared with a recurrence of anginal attacks if a sufficient fall in the metabolic rate had not taken place, and they disappeared permanently only with the establishment of an adequate hypothyroid state. Similarly, temporary relief of anginal pain and of hyperesthesia and hyperalgesia occurred in each of three cases in which there had been performed only a total hemithyroidectomy. These changes, however, were limited to the corresponding side of the chest and disappeared permanently only after the other half of the gland had been removed at a second stage. From these observations they were led to believe that the "nerve" relief is only transitory and that permanent relief is brought about by the reduction in cardiac load resulting from lessened metabolic demands.

Levine and Eppinger<sup>3</sup> and Cutler and Schmitker<sup>7</sup> have offered a very different explanation for both the immediate and the permanent relief of attacks of angina pectoris. They believe that total thyroidectomy relieves these attacks by altering the epinephrine effect on the heart. They suggest that the heart is rendered less sensitive to epinephrine for the reason that they found that, whereas the subcutaneous injection of from 0.3 to 1 cc of a 1:1,000 solution of epinephrine produced severe attacks of angina pectoris in their patients before operation, it produced either no pain or greatly modified attacks when administered as early as twenty-four or forty-eight hours after operation. From a similar investigation Riseman, Gilligan and Blumgart<sup>8</sup> found that the clinical improvement after total thyroidectomy was independent of any change of sensitivity to epinephrine and, contrary to the observations of the former investigators, they could demonstrate no change in sensitivity as judged by the heart rate, the blood pressure, the rate and depth of respiration, the consumption of oxygen, and the blood sugar levels in their patients until they had developed definite clinical myxedema. No mention is made regarding alterations in the pain response. Experimentally, however, Sawyer and Brown,<sup>9</sup> have shown that the tachycardia response to epinephrine in the isolated perfused heart is increased by the addition of thyroxine and is less than normal in the hearts of animals that had previously been totally thyroidectomized.

As further evidence that a reduction in the delivery demands on the heart is not solely responsible for relief of angina pectoris as maintained by Blumgart and his associates, it was found by Levine and Eppinger<sup>10</sup> that

3 Levine and Eppinger<sup>10</sup> Eppinger E C and Levine S A Angina Pectoris: Some Clinical Consideration with Special Reference to Prognosis Arch Int Med 53: 120 (Jan) 1934 footnote 6

4 Berlin D D Total Thyroidectomy for Intractable Heart Disease: Summary of Two and One Half Years Surgical Experience J A M A 105: 1104 (Oct 5) 1935 Weinstein D and Blumgart<sup>5</sup>

5 Weinstein A A Davis David Berlin D D and Blumgart H I The Mechanism of the Early Relief of Pain in Patients with Angina Pectoris and Congestive Failure After Total Ablation of the Normal Thyroid Gland Am J M Sc 187: 753 (June) 1934

6 Levine and Eppinger<sup>10</sup> Eppinger E C and Levine S A The Effect of Total Thyroidectomy in Response to Adrenalin Proc Soc Exper Biol & Med 31: 485 (Jan) 1934

7 Cutler E C and Schmitker M T Total Thyroidectomy for Angina Pectoris Ann Surg 100: 578 (Oct) 1934

8 Riseman J E T Gilligan Dorothy R and Blumgart H I Treatment of Congestive Heart Failure and Angina Pectoris by Total Ablation of Normal Thyroid Gland: Sensitivity of Man to Epinephrine Injected Intravenously Before and After Total Thyroidectomy Arch Int Med 56: 38 (July) 1935

9 Sawyer M E M and Brown M G Effect of Thyroidectomy and Thyroxine on Response of Denervated Heart to Injected and Secreted Adrenaline Am J Physiol 110: 620 (Jan) 1935

10 Levine S A and Eppinger E C Further Experiences with Total Thyroidectomy in Treatment of Intractable Heart Disease Am Heart J 10: 736 (Aug) 1935

in certain of their cases presenting congestive heart failure the rate of blood flow was unaltered by total thyroidectomy despite the development of myxedema and of clinical improvement. To add further confusion to this controversial subject, Lyon and Horgan<sup>11</sup> have reported five cases of angina pectoris unassociated with thyroid disease in which prolonged and, up to the time of their report, permanent relief had resulted merely from ligation of the superior and inferior thyroid arteries on both sides. One patient had had no attacks of angina pectoris for ten months, one for five months, and three for more than three months. In the first case the basal metabolic rate had receded from plus 5 to minus 13. They attribute the relief in their cases to two factors: (1) a lowering of the metabolic rate from diminution in the blood supply of the gland, and (2) interruption of the sympathetic stimuli to the gland and of the intercommunicating nerve pathways between the gland and the heart.

In the light of the foregoing information an attempt will be made to analyze the mechanism of relief in my case. This patient presents an unusual clinical picture of angina pectoris associated with an old substernal degenerated adenomatous goiter and with a hypometabolic state without symptoms of myxedema. Undeniable is the possibility that the very low preoperative metabolic rate of minus 32 was inaccurate. It was measured, however, in an excellent laboratory and repeated with approximately the same result. In consideration of this low rate it seemed unwise to deprive the patient totally of thyroid tissue, and since the pain had always been confined to the left side it seemed probable in the light of the experience of Lyon and Horgan<sup>11</sup> that it might be relieved by subtotal thyroidectomy, the left lobe, however, being removed completely. This procedure gave not only immediate but also prolonged (now eleven months) relief from angina pectoris, and the relief developed not as a result of hypothyroidism but rather in the presence of sufficient thyroid tissue to maintain a normal metabolic rate.

In the discussion that follows, it should be emphasized that there has been no intent to draw conclusions with general implications. Such conclusions cannot be made from a single case, nor can the clinical picture and results in this unorthodox case be compared directly with those investigated by Blumgart, Cutler, Levine and their associates, in which cases the thyroid glands were normal. For instance, it is possible, though I believe unlikely, that the attacks of angina pectoris in this case were caused by pressure from the substernal portion of the goiter on nerves or other structures in the anterior superior mediastinum and that release of this pressure brought about relief. Again, relief may have resulted merely from the removal of the large mass of abnormal thyroid tissue. Coller<sup>12</sup> has observed that certain cardiac irregularities in cases presenting nontoxic goiters disappeared after subtotal thyroidectomy, although the metabolic rates remained normal.

No determinations were made of the rate of blood flow before or after operation but if the metabolic rate is an index to the rate of flow as stated by Blumgart it is reasonable to assume that the velocity was increased rather than decreased. Disregarding this speculation, the fact remains that there has been pro-

longed relief in the presence of a normal metabolic rate and that a reduction in the metabolic demands on the heart has played no part.

Interruption of the sympathetic nervous innervation of the left lobe of the gland obviously was accomplished at operation and if this represents the mechanism of relief in this case it differs from that observed by Weinstein and his associates.<sup>5</sup> As in their cases in which hemithyroidectomies had been done there was an immediate loss of the preoperative hyperesthesia and hyperalgesia of the thoracic wall, but in my case these abnormal sensory manifestations and attacks of angina pectoris did not return in a few weeks and have not recurred to date (eleven months).

It has been suggested that there exists direct nervous communication between the heart and the thyroid gland independent of the sympathetic or other nerve trunks and that these pass from the heart upward in the adventitia of the aorta, innominate carotid and superior and inferior thyroid arteries. Only by virtue of some such mechanism could one rationalize the prolonged relief of angina pectoris in the case here presented and in the cases reported by Lyon and Horgan on a basis of interruption of nervous impulses. In assuming that the operation merely interrupted communications between the gland and the cervical sympathetics, one has difficulty in comparing the results in these cases with those obtained from the extensive operation of cervical sympathectomy as devised by Jonnesco.<sup>13</sup>

No studies of sensitivity to epinephrine were made in this case, and for an obvious reason. However, since there was at all times sufficient circulating thyroid secretion to maintain a normal metabolic rate the theory of relief of angina pectoris from a reduction of sensitivity to epinephrine as advocated by Levine, Cutler and their associates,<sup>14</sup> seems inapplicable. It is probable that some change did occur in the interrelationship of the thyroid and adrenal glands, and equally probable in the interrelationship of all members in the endocrine system. In support of this contention are the changes that occurred after operation in the metabolic rate (an elevation from minus 30 per cent to minus 5 per cent) and in the metabolism of sugar, which shifted from preoperative abnormality to postoperative normality. That the pituitary and adrenal glands are capable either directly or indirectly of exerting a profound influence on both the general metabolic rate and the metabolism of sugar is supported by much clinical and experimental evidence. Also there is increasing evidence that there is a close interrelationship between the functions of the sympathetic nervous system and the endocrines, particularly those glands which have with the sympathetic nervous system a common embryologic origin. Since endocrinology lends itself so readily to romantic fancy it seems not out of place to suggest that a part of the cardiac benefit from total thyroidectomy results from a change in the state of the general vascular bed, the tone of which is controlled by the adrenals and sympathetic nervous system. This is suggested in the words of Levine and Eppinger<sup>10</sup> "the essential change [as the circulation and cardiac function in congestive failure improve] being an improvement in the back pressure factor, i. e., diminution of venous or pulmonary engorgement."

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<sup>11</sup> Lyon J. A. and Horgan E. Dissociation of the Thyroid from the Sympathetic Nervous System and Reduction of the Blood Supply of the Thyroid in Angina Pectoris. *South M. J.* 27: 985 (Dec.) 1934.  
<sup>12</sup> Coller F. A. The Morbidity of Endocrine Goiter. *J. A. M. A.* 82: 1745 (May 31) 1924.

<sup>13</sup> Jonnesco T. La réaction du sympathique dans l'angine de poitrine. *Pre. e. med.* 31: 517 (June 9) 1923.

<sup>14</sup> Cutler E. C. Total Thyroidectomy for Heart Disease. *Minneapolis Med.* 18: 421 (July) 1935. Cutler and Schmitzer<sup>1</sup> Eppinger and Levine (footnote 5 and 6).



# INFECTIVITY OF THE SPINAL FLUID IN LYMPHOGRANULOMA INGUINALE

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Because of the usual location of its primary lesion and its close epidemiologic relation to sexual life, lymphogranuloma inguinale must be grouped with the venereal diseases. Whether the infection in human beings leads to a systemic disease or whether it produces only local lesions is of vital importance to its proper evaluation and the planning of appropriate therapeutic measures.

It has been shown by numerous experiments that inoculation of infectious material into various animals will frequently produce general dissemination of the virus with the appearance of lesions remote from the site of inoculation.<sup>1</sup> While numerous reports maintain the frequency of extragenital lesions—skin, joints, eyes, meninges—during the course of the disease in man, no definite proof exists that such lesions are directly ascribable to the virus. On the other hand the history of the average patient suffering from lymphogranuloma

*Animal Passage of Virus Recovered from Glands and Spinal Fluid*

Pro- total	Character and Duration of Lesions	Diagnosis		Evidence of the Virus in	
		Frei Reaction	Biopsy	Buboes	Spinal fluid
27	Right inguinal bubo nine days	Positive	Positive	Positive 5 passages	Positive 14 passages
36	Bilateral inguinal bubo one month	Positive	Positive	Positive 5 passages	Negative 3 passages
43	Left inguinal bubo eight days	Positive	Positive	Positive 4 passages	Negative 3 passages
42	Left inguinal bubo ten days	Positive	Positive	Positive 13 passages	Positive 3 passages
40	Right inguinal bubo five days	Positive	Positive	Positive 3 passages	Negative 3 passages
41	Right inguinal bubo two weeks	Positive	Positive	Negative 0 passages	Negative 3 passages
45	Left inguinal bubo, four days	Positive	Positive	Positive 8 passages	Negative 3 passages
32	Bilateral inguinal bubo two weeks	Positive	Positive	Positive 5 passages	Negative 2 passages

inguinale suggests in many respects the presence of a generalized infection. During the acute stage of the disease we have encountered quite regularly severe constitutional symptoms, such as fever up to 100 F or higher accompanied by chills, weakness, anorexia, profuse night sweats, and violent headaches. In the literature the importance of the initial rise in temperature has been repeatedly stressed as a valuable aid in distinguishing lymphogranuloma inguinale from other local venereal lesions.<sup>2</sup> Of equal importance, although not sufficiently emphasized is the early occurrence of headaches. The pain is usually described as dull, pressing in character principally in the upper part of the forehead, radiating occasionally into both temples and into the eye sockets. Sometimes it is accompanied by vertigo and nausea, forcing the patient to remain in bed. Sensitivity to light with marked conjunctivitis and occasional stiffness of the neck with pains radiating toward the back of the head in our experience have also been encountered quite frequently.

Aided in part by a grant from Parke Davis & Co.  
From the Departments of Pathology and Bacteriology of the Medical  
Center of Louisiana State University and the Charity Hospital of  
Louisiana.

1. Von Haam, Emmerich and Daunoy Rigney. *Am J Trop Med*  
to be published.  
2. Lo-he H and Iluenners K. *Med Klin* 27: 614 (April 24)  
1931.

The headaches observed with such regularity in the acute stage of the infection suggested to many authors some type of cerebral involvement during the initial phase of the disease. This naturally led to investigation of the spinal fluid. Ravaut and Scheikevitch<sup>3</sup> could not detect any changes in the spinal fluid. Midana and Vercellino<sup>4</sup> found positive Pandy and Nonne reactions, with increased cell counts in two of eleven fluids examined. Kitagawa's<sup>5</sup> interesting finding of marked increase in the intraspinal pressure could not be confirmed by Chaigneau<sup>6</sup> or Espildora and Coutts.<sup>7</sup> Coutts, Landa, Perroni and Martini Herrera<sup>8</sup> report inconclusive results with complement fixation tests on spinal fluids, using an antigen prepared from excised buboes. Because of the apparent conflicting results obtained by various authors, we decided to study the spinal fluid in a series of acute cases of lymphogranuloma inguinale and to attempt by means of animal experimentation to prove or disprove the presence of the virus in the spinal fluid.

For our studies we selected only patients in the acute stage of the disease. They all presented in a greater or less degree the aforementioned characteristic constitutional symptoms of fever and headache and had suffered with painful inguinal buboes for from a few days to two weeks. Each gave a strongly positive Frei reaction and a negative blood Wassermann reaction, and adenectomy was done in each case. Intracerebral inoculation of 10 per cent emulsions of excised buboes into white mice revealed in all cases the presence of the virus, and the histopathologic picture of the excised gland was in all instances typical of the disease. Spinal fluid from these patients was inoculated intracerebrally in 0.01 cc portions into white mice. Some of the animals were killed after two weeks for further animal passage and histologic examination of their brains. Others were kept under observation until the onset of the characteristic symptoms. In all cases inoculation of gland emulsions resulted in the production of typical clinical and histopathologic changes. In two of the cases inoculation of the spinal fluid was followed by similar changes. The viruses recovered from the glands and the spinal fluids were carried through several animal passages as indicated in the accompanying table. The strain recovered from the spinal fluid in case 27 still being carried for further biologic studies. Brain emulsions from the animals successfully inoculated with the spinal fluid from patients 27 and 42 gave strong cutaneous reactions in patients infected with lymphogranuloma inguinale.

## COMMENT

In a previous communication we discussed the possibility of lymphogranuloma inguinale being under certain conditions a systemic infection in man. On the basis of our own clinical and experimental observations and of data available in the steadily mounting literature, we concluded that there is much evidence at least suggestive of frequent generalized dissemination of the virus during the early stages of the disease. In a recent paper Coutts,<sup>9</sup> who is the outstanding investigator of this disease in South America, takes a similar point of view and even goes so far as to divide the disease into

3. Ravaut P and Scheikevitch L. *Bull et mem Soc med d hop de Paris* 45: 310 (March 4) 1921.
4. Midana A and Vercellino V. *Bull Soc franç de dermat et syph* 41: 161 (Feb.) 1934.
5. Kitagawa K. *J Orient Med* 20: 48 (April) 1934.
6. Chaigneau A. *Thesis University of Chile* 1935.
7. Espildora Cristobal and Coutts W E. *Rev med de Chile* 62: 633 (Nov.) 1934.
8. Coutts W E, Landa Perroni F and Martini Herrera J. *Dermat Wehnschr* 98: 558 (May 5) 1934.
9. Coutts W E. *J Trop Med & Hyg* 39: 13 (Jan 15) 1936.



three distinct periods or stages similar to those noted during the evolution of syphilis. According to him, the time elapsing between infection and the appearance of the primary lesion must be regarded as the primary incubation period and may extend up to three weeks. This is followed by a secondary period characterized by the appearance of constitutional symptoms, inguinal buboes and occasionally generalized lymphadenitis, skin lesions, conjunctival lesions and anemia. Lesions of the tertiary period are elephantiasis of the genital organs, ulceration of the vulva (esthiomene) and rectal stricture. Although we are inclined to consider the conclusions of Coult's premature on the basis of the available clinical observations on the various manifestations of the disease, we cannot deny that such a concept may yet prove correct.

Our successful demonstration of the virus in the spinal fluid of infected patients certainly proves that dissemination of the virus in the human body actually occurs. Study of the spinal fluid in a large number of cases alone will prove whether this reported observation must be regarded as the rule or as an exception during the course of the disease. Even should the latter prove true, our observations give a firmer basis to the incrimination of the virus as the causal agent of the cerebral manifestations occurring during the course of lymphogranuloma inguinale, as described in increasing frequency by continental authors.

#### USE OF THE FEMALE BITTERLING AS A TEST FOR MALE HORMONE

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In 1934 Kanter, Bauer and Klawans<sup>1</sup> reported a new biologic test for hormones in pregnancy urine. The title as well as the text intimated, although it did not positively assert, that the procedure might be useful in diagnosing pregnancy. The technic requires the addition of a small amount of the suspected urine to an aquarium containing a female bitterling. These fish possess an ovipositor which in the quiescent state is from 2 to 5 mm long. A positive reaction is denoted by an elongation of the ovipositor to a length of about 25 mm. The simplicity of this test aroused widespread interest, and many workers desired to use it, believing that it was a test for pregnancy.

However, it was demonstrated<sup>2</sup> that this remarkable phenomenon is not a pregnancy test, since distinctly positive reactions were obtained with some urines from males, nonpregnant females and women in the post-climacteric period. Furthermore, pregnancy urines did not all give positive reactions.

It was thus evident that some factor present in a wide variety of urines not solely related to pregnancy was responsible for the ovipositor test. This conclusion has been corroborated by various workers in other laboratories. We have also found that a larger per-

centage of male urines will react than we had first reported. In fact, every normal male urine recently tested has proved positive if a large enough dose of urine could be used without harming the fish.

In the attempt to determine the cause of this phenomenon we have tested many substances, including crystalline theelin and theelol<sup>3</sup> as well as various proprietary hormone preparations, including a number estrogenic in nature. As a result of these tests we arrived at the hypothesis that the responsible factor was not one of the female sex hormones but one of the so-called male hormones.

This is a more logical hypothesis than would at first thought seem to be the case. Since the ovipositor stimulating substance or substances are added to the water in which the female fish swims, it would appear that she reacts to a hormone contributed from a source outside her own organism. That this source might be a male bitterling would seem likely, since the lengthening of the ovipositor occurs normally as a part of the reproductive cycle in the spawning season and when the female is in close association with the male. We have never noticed spontaneous ovipositor lengthening during the breeding season when the females were kept segregated from the males. When the breeding season occurs, it is probable that the male secretes his hormone and excretes it into the water near the female. She is thereby stimulated to react by a lengthening of the ovipositor, through which the ova pass when being deposited at their natural site. This hormone mechanism would insure the presence of a male in the neighborhood of the female at spawning time. Naturally this hypothesis presupposes that the male hormone of the fish and that of man have similar activity. In brief the male hormone furnishes the necessary stimulation to induce ovipositor elongation in the female.

The following is an outline of a typical experiment which indicates that the idea is correct. Eighteen liters of mixed male urine was treated according to the methods of Funk, Harrow and Lejwa<sup>4</sup>; Butenandt and Tscherning,<sup>5</sup> and Kochakian and Murlin,<sup>6</sup> yielding two fractions (a) containing male hormone and (b) containing female hormone. Portions of a and b were emulsified and added in varying doses to aquariums containing female bitterlings in the quiescent stage. Positive reactions with the fish were obtained only with the male fraction (a). As confirmatory evidence that a contained the male hormone, it was injected in oil solution into a capon. It produced the well known comb and wattle growth. The other fraction (b) did not have this effect on the capon. Oil solutions of a and b were also injected into immature mice. Both fractions caused estrus. However, it has been shown by several investigators<sup>7</sup> that the male hormone has estrus-producing properties when concentrated.

It is thus evident that the male hormone present in male urine, presumably androsterone, produces the ovipositor lengthening reaction in the female bitterling.

3 We are indebted to Prof. Edward A. Doisy for samples of crystal theelin and theelol.

4 Funk, Camille, Harrow, Benjamin and Lejwa, A. The Male Hormone. Proc. Soc. Exper. Biol. & Med. 26: 569 (April) 1929.

5 Butenandt, A. and Tscherning, K. Ueber Androsteron, ein kristallisiertes männliches Sexualhormon. I. Isolierung und Reindarstellung aus Männerharn. Ztschr. f. physiol. Chem. 229: 167 (Nov.) 1934.

6 Kochakian, C. D. and Murlin, J. R. The Effect of Male Hormone on the Protein and Energy Metabolism of Castrate Dogs. J. Nutrition 10: 437 (Oct.) 1935.

7 Fellner, O. O. Ueber die Wirkung des Placentar- und Hodenlipoids auf die männlichen und weiblichen Sexualorgane. Arch. f. d. ges. Physiol. (Pflügers) 189: 199, 1921. Carminati, U. Osservazioni sull'azione degli ormoni sessuali nei ratti con speciale riguardo ai fenomeni ciclici nella vagina. Endocrinol. e pat. costit. 2: 337 (Dec.) 1927. Laquer, F. Dingemans, E., Hart, P. C. and de Jongh, S. F. Ueber das Vorkommen weiblichen Sexualhormons im Harn von Männern. VJ. Mitteilungs. Klin. Wehnsehr. 6: 1859 (Sept. 24) 1927.

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1 Kanter, A. E., Bauer, C. P. and Klawans, A. H. A New Biologic Test for Hormones in Pregnancy Urine. J. A. M. A. 103: 2026 (Dec. 29) 1934.

2 Kleiner, I. S., Weisman, A. I. and Barowsky, Harry. An Investigation of the New Biologic Test for Hormones in Pregnancy Urine. J. A. M. A. 104: 1318 (April 13) 1935.

The anterior pituitary-like hormone does not give this test. Fractions containing theelin and theelol, and these crystalline hormones themselves, do not give this reaction or do so in a very slight degree.

We suggest the use of this reaction as a new test for male hormone. It is extremely simple, inexpensive and time saving. A positive reaction is usually seen at the end of from eighteen to twenty-four hours. Sometimes the ovipositor continues to grow during the second twenty-four hours.

In order that the test may be used in a uniform manner by all, we suggest a procedure and at the same time define a unit as follows. One bitterling unit is the smallest amount of material which, when added to an aquarium containing two female bitterlings in 4 liters of water, will cause marked lengthening of the ovipositor (to the end of the anal fin or beyond) in at least one of the two within forty-eight hours. Other necessary conditions are (1) the fish must have been in the test aquarium for from eighteen to twenty-four hours before the suspected material was added, and (2) at least half of the water used should be taken from the stock tank.

#### COMMENT

The simplicity of the bitterling test should make it of great value in the isolation and purification of male hormone. It should also aid in the establishment of a definite clinical diagnosis of many endocrine disorders.

The details of this work will be published in another journal in the near future.

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### AN INSTITUTIONAL OUTBREAK OF EPIDEMIC JAUNDICE

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In October 1934 an outbreak of jaundice occurred among the students attending a religious novitiate in St. Louis County. Permission to investigate this outbreak was granted by the state health officers when two cases were hospitalized in a St. Louis Hospital. Since epidemic jaundice is not reportable, we have no authentic information regarding the occurrence of similar outbreaks.

The school consists of 132 male students divided into three groups: sixty-two juniors, aged between 16 and 17 years, thirty-six seniors, aged between 19 and 20 years, and thirty-four scholastics, aged between 21 and 22 years. The groups are separated in that they have different dormitories, refectories and class rooms. Contact between them is nil except on Sunday, when members of the same family alone may meet. All groups attend chapel daily but each group is kept separate. The routine housework is done by the students themselves.

The outside help consists of those employed in the kitchen, a carpenter, an engineer, a chauffeur, two tailors, and a bookkeeper. The chapel is open to the public, but services are not attended jointly by the outsiders and the students. There is a separate entrance for the outsiders.

From the Laboratory Section of the St. Louis Health Division. The authors were assisted by Dr. Joseph Grindon in the collection of clinical data.

#### EPIDEMIOLOGY

There are four sources of water supply available to the institution, two springs in shallow limestone and two deep drilled wells. The spring water is used only to fill the swimming pool and cannot be pumped through the distribution system. The two deep wells are so located and installed that apparently there is no opportunity for contamination entering the top of the casing. From the wells the water is pumped to an elevated storage tank located on a hill above the institution. The storage tank is constructed of masonry walls extending above and below the ground. The cover of the tank is constructed of wood and provided with a screened ventilator, the top is not tight enough to prevent aerial pollution, and there are openings between the roof and the masonry walls large enough to admit small animals.

The grounds of the institution were well kept, all the buildings were in a good state of repair, and sewage was disposed of through a water carrying system. There were a few rats on the premises but there was no unusual increase in the rat population noticed at the time of the epidemic. The institution was free of blood sucking insects, and there had been no complaint on the part of the students during this time of having suffered insect bites.

During the month of August 1934 the junior students were away on their vacation and the senior students had just completed an eight-day retreat during the latter part of this month. September 1 the first case of jaundice appeared in a senior student. Inspection of table 1 reveals the occurrence of another case on September 2, two on the 4th, and one each on the 10th and 29th. One case occurred on October 10, 17 and 25, and the last on November 7, making a total of ten cases.

It was not until September 23 that the first case occurred among the scholastics. Additional cases occurred September 24 and 28, October 1 and 4, and November 6. Sixteen cases of jaundice occurred among the junior students. These cases occurred between October 7 and December 9.

In all, thirty-two students, or about 25 per cent of the entire student body, became jaundiced. In addition to these cases, six junior students presented similar symptoms except for the absence of jaundice. Only one older adult, an instructor, out of a total of sixty-eight, became jaundiced, but unfortunately he was absent during the course of the investigation. Table 2 gives the case rate of epidemic jaundice according to the groups.

A child of one of the help residing near the institution who attended services at the chapel likewise developed jaundice. A detailed report of this case was never obtained. This is the only authentic instance of jaundice appearing in an outsider.

#### SYMPTOMATOLOGY

The disease was relatively mild in the majority of cases. In typical cases there was a slight initial elevation of temperature with several days of nausea, vomiting, anorexia, abdominal pain, constipation, clay colored stools, and bile stained urine. In some cases a hard chill initiated the illness. Jaundice was universally present in the cases analyzed and usually appeared between the first and the fourth day, in four instances it occurred on the seventh and eighth day and in one on the twelfth day. Icterus of the sclera alone was noted in a few cases. As a rule, however, the jaundice

was widespread and varied from a light yellowish brown to a deep brown tint. The duration of the jaundice extended from three days to twenty-two days, disappearing most commonly between the seventh and tenth days.

Abdominal pain localized to the right upper quadrant was a common complaint. The spleen was palpable in only three out of seven cases that we examined. The fever ranged from 99 to 104 F. Weakness and prostration were common complaints and often continued through convalescence. Loss of weight in a few students was quite striking. The illness lasted from a few days to four weeks. No deaths occurred during the outbreak. The blood picture showed a mildly infectious condition.

Only two patients were hospitalized, the remainder being treated at the school by school physicians. Detailed routine clinical laboratory examinations could not be made because of the lack of proper facilities. Table 3 gives a list of the symptoms noticed and the number of cases exhibiting them.

TABLE 1—*Date of Onset of Epidemic Jaundice and Weekly Distribution of Cases According to Groups*

	Group (Week That Ended)															
	September				October				November				December			
	7	14	21	28	30	7	14	21	28	31	7	14	21	28	30	31
Juniors	0	0	0	0	0	1	4	4	3	1	1	1	0	0	0	0
Seniors	4	1	0	0	1	0	1	1	0	1	0	0	0	0	0	0
Scholastic	0	0	0	2	1	2	0	0	0	0	1	0	0	0	0	0
Total	4	1	0	2	2	3	5	5	4	1	3	1	0	0	0	0

The clinical picture, we felt, suggested the possibility of Weil's disease. In order to establish this diagnosis it was necessary to demonstrate *Leptospira icterohaemorrhagiae*.

#### LABORATORY INVESTIGATION

Guinea-pigs were chosen as the experimental animal. In this connection Topley and Wilson<sup>1</sup> state: "*Leptospira icterohaemorrhagiae* is highly pathogenic for guinea-pigs whether administered intraperitoneally, subcutaneously, cutaneously or by mouth, resulting in an illness lasting five to twelve days and terminating in death."

In only four cases were we able to obtain blood specimens in the first seven days of the disease. It was not considered worth while to make animal inoculations with blood specimens after the tenth day. Forty-eight specimens of urine and eight specimens of saliva

TABLE 2—*Case Rate of Epidemic Jaundice According to Groups*

	Juniors	Seniors	Scholastics	Total or Average
Ages year	16-17	19-20	21-22	
Number of students	62	36	34	132
Cases	16	10	6	32
Rate	25.8	27.7	17.6	24.2

were studied by darkfield examination and by guinea-pig inoculations. All darkfield examinations were negative for organisms of the *Leptospira* group and none of the guinea-pigs developed any symptoms of jaundice. Postmortem examinations of animals dying and those killed failed to show pathologic changes indicative of infection with *Leptospira icterohaemorrhagiae*.

<sup>1</sup> Topley, W. W. C. and Wilson, G. S. *The Principles of Bacteriology and Immunity*. New York: William Wood & Co. 2: 1200. 1939.

rhagiae. Repeated examinations of urine specimens of inoculated guinea-pigs failed to show *Leptospira*. Guinea-pigs inoculated were killed at intervals of from eight to ten days, and various organs were macerated and reinoculated into other pigs. Negative results were obtained in all cases. Centrifuged specimens

TABLE 3—*Frequency of Symptoms in Thirty-Two Cases of Epidemic Jaundice*

Symptoms	Cases
Fever	23
Nausea	21
Vomiting	21
Chills	17
Headache	16
Weakness	14
Anorexia	8
Vertigo	7
Pain in calf muscles	6
Generalized body aches	5

of the institution's water supply were studied by darkfield examination and by guinea-pig inoculation with negative results.

#### WATER FROM HOLY WATER FONTS

A total of nine specimens were collected from fountains serving both students and transients, located in five different places in the institution. All these samples showed organisms in great numbers, identical in morphology and motility with *Leptospira icterohaemorrhagiae*. In this regard Buchanan<sup>2</sup> reports having produced fatal jaundice in guinea-pigs with *Leptospira* isolated from roof slime of a coal mine. Hindle<sup>3</sup> isolated spirochete-like organisms from London drinking water thought to be mildly pathogenic for guinea-pigs.

Efforts were made to infect guinea-pigs with the organisms we isolated. Guinea-pigs were inoculated

TABLE 4—*Number of Guinea Pig Inoculations Made with Specimens from Cases of Infectious Jaundice and from Water Supply*

Material	Number of Inoculations
Human urine	56
Human blood	12
Human saliva	6
Water and water culture material	60
Guinea pig urine	18
Guinea pig autopsy material	24
Total	146

with these organisms intraperitoneally, intracardially, intracutaneously, intranasally, by ingestion and by ocular instillation. Scorbatic pigs were inoculated, also pigs that had received intramuscular inoculation with irritants. In no instance were we able to establish infection. Efforts were made to enhance the virulence by cultural methods in rabbit's serum and by serial transfers from animal to animal. These tests were negative. No serologic studies were made in connection with this investigation and no rats from the affected area were submitted for examination. A summary of the extent of the laboratory work in connection with this outbreak is given in table 4. This table does not include oral, nasal and conjunctival inoculations. Darkfield examination of the water from

<sup>2</sup> Cup containing a sponge saturated with holy water.

<sup>3</sup> Buchanan, George. *Spirochaetosis icterohaemorrhagiae*. Brit. M. J. 2: 990 (Nov. 29) 1924.

<sup>4</sup> Hindle, Edward. *Leptospira* in London Water. Brit. M. J. 2: 57 (July 11) 1925.

fonts after the epidemic had subsided continued to show *Leptospira*, although the organisms were decidedly fewer in number

#### COMMENTS

Outbreaks of epidemic jaundice have been reported in practically all states in the union. In many instances they were described as outbreaks of Weil's disease without complete laboratory proof being established. That certain forms of *Leptospira* found in stagnant water may produce a mild infection in epidemic form was postulated by Noguchi. Towler and Walker<sup>5</sup> found only six cases of infectious jaundice in the United States between 1922 and 1926 in which *Leptospira icterohaemorrhagiae* was demonstrated.

Many authors agree that epidemic jaundice is due to some factor not recognized at the present time. Hiscock<sup>6</sup> described an outbreak similar in many details to ours, occurring in sixty-nine Yale students. He was unable to demonstrate the etiologic agent. He concluded that these cases originated in contact infection either by direct transfer from person to person or in some instances by infection of eating utensils. Wadsworth,<sup>7</sup> reporting the occurrence of infectious jaundice in New York State, did not find *Leptospira icterohaemorrhagiae* in eighty-seven specimens of urine and thirty-six specimens of blood by guinea-pig inoculations. Waters<sup>8</sup> reported a series of 150 cases of jaundice in which the laboratory studies were negative.

Blumer<sup>9</sup> reviewed the status of infectious jaundice in the United States and noted that

1 Seventy two per cent of the epidemics occurred during the fall and winter months and only 10 per cent appeared in summer

2 The disease primarily involves the childhood and young adult population. In 70 per cent of the epidemics, children and young adults alone were affected

3 The spread of the disease occurs by direct contact. Rats were implicated but in some epidemics rodents were not found

The chief interest in the outbreak being reported centered on the finding of *Leptospira* in the holy water fonts. The sanitary condition of the fonts was promptly improved, with the resultant sudden cessation of cases. One month later, however, one more case developed in a boy whose duty consisted of replenishing the holy water in the fonts. There were no additional cases.

*Leptospira* was found in large numbers in the fonts located at both the transient and the student entrance to the chapel. Since the chapel was used by all members of the institution in common, it is difficult to minimize the importance of this observation. It is entirely possible that the epidemic was subsiding at the time the fonts were disinfected and that the finding of *Leptospira* was of no significance. Direct contact undoubtedly played a role, but to what extent is open to conjecture. A fact which cannot be overlooked is our failure to reproduce the disease in guinea-pigs. What role *Leptospira* played in the dissemination of the disease is difficult to ascertain.

#### CONCLUSIONS

In an outbreak of jaundice involving thirty-two students out of a total of 132, *Leptospira* morphologically identical to *Leptospira icterohaemorrhagiae*

was readily demonstrated in samples of water removed from holy water fonts. Attempts to reproduce the disease in guinea-pigs in which water from the fonts, blood, urine and saliva from patients were used were unsuccessful.

When the sanitary condition of the fonts was improved, the epidemic subsided. The relationship of *Leptospira* to the dissemination of the outbreak cannot be ascertained. It would seem that this epidemic was of nonleptospiral origin.

## INVOLVEMENT OF THE NERVOUS SYSTEM IN TRICHINIASIS

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It has been known for some years that the nervous system may be involved in cases of trichiniasis, but to date there have been few reports in the literature. Recently two patients with neurologic complications of trichiniasis were seen in the neurologic unit of the Boston City Hospital. The diagnosis in these cases was made with great difficulty. We thought it would be advisable, therefore, to report these cases and give a brief review of the literature.

#### REPORT OF CASES

**CASE 1—Seventeen year old girl with mental confusion, delirium, spastic left hemiplegia and flaccid paralysis of the left shoulder girdle, recovered**

**History**—A B., a white girl aged 17 years, of Lithuanian parentage, was perfectly well until Aug. 17, 1935 when she noted that her eyelids were swollen and that the eyes were "bloodshot." This condition of the eyes lasted for about one week. No further symptoms were noted until August 27, when she complained of stiffness of the neck. August 30 she suddenly collapsed owing to weakness of the left leg and was put to bed, acutely ill with fever, nausea, vomiting, headache and pains in the back of the neck and in the lumbar region. August 31 she was delirious and mentally confused, and a flaccid paralysis of the left arm was noted. The family physician made a tentative diagnosis of acute anterior poliomyelitis and sent the patient to the contagious ward (South Department) of the Boston City Hospital September 2.

The patient was well developed and well nourished, and appeared to be acutely ill. She lay quietly in bed in a semi-stuporous condition but responded readily to questions. She was imperfectly oriented as to time and place and her memory for recent and remote events was impaired. There was incontinence of urine and feces. The vital signs were negative, as was the examination of the skin, ears, nose, throat, lungs, heart and abdomen. She was seen by us September 3 and was transferred to the neurologic unit. At that time the neurologic examination showed a slight weakness of the left lateral gaze, an impairment of convergence and upward and downward gaze and a moderately severe left hemiplegia of the cerebral type involving the leg arm and lower half of the face. In addition there was a complete flaccid paralysis of the muscles of the left shoulder girdle apparently of a lower motor neuron type. This flaccid paralysis was greatest in the scapular, the deltoid, the pectoral and the triceps muscles on the left. There was a moderate weakness of the biceps muscle and the muscles of the forearm, wrist and hand on the left. There were no subjective sensory symptoms, and no objective sensory changes were demonstrated. There was no tenderness of the muscles or of the nerve trunks. The biceps and triceps reflexes were absent on the left side and normally active on the right. The radial periosteal reflex was diminished on the left. The knee

From the Department of Neurology Harvard Medical School and the Neurological Unit Boston City Hospital

5 Towler H. H. and Walker J. E. Spirochetal Jaundice J. A. M. A. 89: 86 (July 9) 1927

6 Hiscock I. A. and Rogers O. F. Outbreak of Epidemic Jaundice Among College Students J. A. M. A. 78: 488-490 (Feb. 18) 1922

7 Wadsworth Augustus Langworthy H. Virginia Stewart F.

Constance Moore Anna C. and Coleman M. B. Infectious Jaundice Occurring in New York State J. A. M. A. 78: 1120 (April 15) 1922

8 Waters S. C. J. Indiana M. A. 15: 430-434 (Dec.) 1922

9 Blumer George Tr. A. Am. Physicians 38: 189 1923

and ankle jerks were hyperactive on both sides, but more so on the left. There was a sustained ankle clonus on the left and an unsustained ankle clonus on the right. Babinski's toe sign was present on both sides, and no abdominal reflexes could be obtained.

**Laboratory Data**—The examination of the urine was negative. The blood count showed 4,000,000 red cells and 82 per cent hemoglobin. The white cells in the blood were counted daily between September 2 and September 14. The total count varied between 8,800 and 12,800 per cubic millimeter. Smears of the blood, which were stained with Wright's stain, contained between 0 and 44 per cent eosinophils. The first smear contained no eosinophils, the next two 6 per cent and 8 per cent, respectively. All subsequent smears contained more than 20 per cent eosinophils. The blood Kahn reaction was negative. Lumbar puncture on September 2 yielded a clear, colorless, cell-free fluid under a pressure of 180 mm of water. The colloidal gold and Wassermann tests were negative, and on chemical analysis the fluid contained 17 mg of protein, 54 mg of sugar and 719 mg of sodium chloride per hundred cubic centimeters. The lumbar puncture was repeated on September 6 and September 9. The condition in the fluid removed on these occasions was similar to that previously recorded. No trichinae were found in any of the fluids. The examination of the feces was negative. The electrocardiogram, September 13, showed a T wave with an abnormally low amplitude suggesting myocardial involvement. Biopsy of the left pectoral muscle showed an inflammatory and degenerative process. Many eosinophils were in the inflammatory exudate, but trichinae were not found in the small piece examined. The skin test for trichiniasis was positive, September 9 and 18. The electrical reaction of the muscles of the left arm was normal, September 10.

**Course**—There was a rapid improvement of the general condition, and five days after admission the patient was mentally clear and was continent of urine and feces. The weakness of the left arm gradually decreased, as did also the left hemiplegia. She was discharged from the hospital September 18 (sixteen days after admission), walking with a slight limp. The reflexes were still hyperactive in the left leg with ankle clonus and Babinski toe response. The strength of the left arm was almost normal and the reflexes in this arm were normal. She returned to the hospital at intervals for examination and when last seen, November 14, there was no motor deficit demonstrable. The reflexes in the left leg were exaggerated and the Babinski response was still present. The blood count at this time was normal except for an eosinophilia of 14 per cent.

The diagnosis in this case was established with considerable difficulty. Trichiniasis was suggested by the history of swollen eyelids and "bloodshot" eyes. Against this diagnosis at the time of admission, however, was the absence of muscle pains and the normal differential count of the blood, and the patient's mental condition was such that she did not remember having eaten any pork. The various diagnoses considered were poliomyelitis and encephalomyelitis. Acute anterior poliomyelitis was considered chiefly because the patient was admitted during a mild epidemic and because of the flaccid paralysis of the left shoulder girdle. This diagnosis was not thought tenable, however, because of the preponderance of cerebral symptoms and because of the normal cerebrospinal fluid. Acute encephalomyelitis, possibly in the nature of an acute multiple sclerosis, was thought to be the best diagnosis. In favor of it was the presence of signs indicating bilateral upper motor neuron and also lower motor neuron involvement. The occurrence of the edema of the eye and the conjunctival hemorrhages could not be explained on the basis of this diagnosis, however, and our attention was redirected to trichiniasis by the very high eosinophil count in subsequent blood smears. This diagnosis was confirmed by skin tests, by biopsy of the muscles and by the history of pork ingestion. When the patient became mentally

clear she remembered that on July 4 she and three friends had eaten pork patties at a local restaurant. The three friends were called in for examination. One of them had noticed on September 3 a slight swelling of his face, general malaise and stiffness of the neck. These symptoms lasted for two days. When examined September 12 the only positive finding was an eosinophilia of 40 per cent in the blood. The remaining two friends who had eaten the pork experienced no symptoms and showed no abnormality on examination September 13 except that their blood showed an eosinophilia of 8 per cent and 9 per cent respectively.

**CASE 2**—Girl aged 13 years with extreme muscular weakness and absent tendon reflexes, recovered.

**History**—S. K., a Negro girl, aged 13 years, was admitted to the First Medical Service of the Boston City Hospital June 17, 1934, and transferred to the neurologic unit June 19. Nine days before admission she noted a burning sensation in the eyes, which continued for three days. Six days before admission there was an attack in which everything went black before her eyes for about five minutes but there was no loss of consciousness. She was put to bed at once and on the following day she had pains in the thighs and arms. She was also nauseated and vomited a few times. Four days before admission a progressive weakness of the back muscles began to develop so that she was unable to sit up and there was also weakness of the legs and of the arms. Her voice became weak. Slight edema of the eyelids was noted twenty-four hours before admission, at which time her temperature was 101 F.

**Examination**—The patient was well developed and well nourished and was acutely ill. The examination of the head, neck, chest and abdomen was negative. The patient could raise her head from the pillow only slightly and she was unable to sit up. There was no stiffness of the neck or Kernig's sign. Blood pressure was 114 systolic, 80 diastolic. The cranial nerves were normal. She was able to move her arms and legs. There was considerable weakness of the thigh muscles and shoulder muscles. The extensors of the arm were weaker than the flexors and the quadriceps were the weakest of the thigh muscles. The deltoid triceps and extensor of the fingers on the left were weaker than on the right. All the tendon reflexes were absent in the arms and legs. Cutaneous and deep sensation was normal. The abdominal reflexes were absent. The plantar reflex was normal. No muscle or nerve tenderness was elicited.

**Laboratory Data**—The urine was normal. The blood Kahn reaction was negative. The blood count, June 18, showed a mild degree of secondary anemia and a leukocyte count of 10,600. No eosinophils were seen on the stained smears. June 20 the leukocyte count was 13,300 and the differential count showed 1 per cent eosinophils. June 21 the leukocyte count was 9,750 and the smear contained 25 per cent eosinophils. Smears stained at intervals between June 21 and the date of discharge, July 10, all showed eosinophils varying between 9 and 28 per cent. The chemical analysis of the blood showed 30 mg of nonprotein nitrogen and 82 mg of sugar per hundred cubic centimeters. The blood culture was sterile and the agglutination tests for typhoid, paratyphoid and *Brucella abortus* were negative. Electrocardiograms taken June 27, 30 and July 3 were negative. Lumbar punctures were performed June 18 and 20. The fluids were clear and colorless and under a normal pressure. The cell count was normal (1 and 3 cells per cubic millimeter). The globulin tests were negative and the protein content was normal. The colloidal gold and Wassermann reactions were negative. A skin test for trichiniasis was positive June 22, and biopsy of the deltoid muscle June 24 showed trichinae.

**Course**—There was a gradual improvement of the strength of the muscles so that by July 12 the patient was able to walk without difficulty. The ankle jerks could be obtained July 2 (fifteen days after entry) and the knee jerks were present on discharge. The blood showed an eosinophilia of 28 per cent at the time of discharge.

Trichiniasis was not considered at the onset of this case because of the absence of eosinophilia in the blood and because of the absence of the history of pork

ingestion. The diagnoses considered at this time were acute anterior poliomyelitis and polyneuritis. The widespread muscular weakness without any actual paralysis was against the diagnosis of acute anterior poliomyelitis, as was also the normal cerebrospinal fluid. The severity of the weakness of the trunk muscles, the absence of sensory loss and nerve tenderness were against the diagnosis of polyneuritis. The development of the marked degree of eosinophilia was the factor that directed our attention to trichiniasis. This diagnosis was confirmed by the skin test and by the finding of organisms in the muscles, although no history of pork ingestion could be obtained.

#### CLINICAL SYNDROMES

The involvement of the nervous system in trichiniasis may simulate polyneuritis, acute anterior poliomyelitis, encephalomyelitis and rarely meningitis. Cases presenting weakness of the muscles of the trunk and extremities with absent reflexes are the most common. The evidences in such cases vary from a complete paralysis with absent reflexes to an absence of reflexes without

absent reflexes. Stiffness of the neck was found in one of these eleven patients and in eight additional patients. Kernig's sign was present in two cases.

Cases presenting mental symptoms and focal neurologic signs have been reported by Salan and Schwartz,<sup>9</sup> Horlick and Bicknell,<sup>10</sup> Meyer,<sup>11</sup> Walker,<sup>12</sup> Gordon,<sup>13</sup> Bloch and Hassin,<sup>14</sup> Hassin and Diamond,<sup>15</sup> Pund and Mosteller,<sup>16</sup> Chasanow,<sup>1</sup> Sterling,<sup>17</sup> and Spink.<sup>18</sup> A summary of the clinical record of the fifteen cases presenting mental symptoms or focal signs is given in the accompanying table.

The occurrence of optic neuritis or cranial nerve paralysis has been noted by Chasanow,<sup>1</sup> Salan and Schwartz,<sup>9</sup> Spink,<sup>18</sup> Parker,<sup>19</sup> Thompson,<sup>20</sup> Stoll,<sup>21</sup> and Bosch.<sup>22</sup>

#### PATHOLOGY

Nine cases in which the nervous system was studied at necropsy are recorded in the literature. In the cases reported by Walker,<sup>12</sup> Gordon,<sup>13</sup> Knorr,<sup>23</sup> and Bloch and Hassin,<sup>14</sup> nonspecific changes were found, i. e. edema, congestion, mild infiltration and moderate nerve cell changes. Frothingham,<sup>24</sup> Gruber and Gamper,<sup>25</sup>

Summary of Cases of Trichiniasis Presenting Involvement of the Central Nervous System

Author	Age	Sex	Head ache	Stiff Neck	Delirium and Other Conditions	Focal Signs	Reflexes		Cerebro spinal Fluid	Outcome
							Knee Jerks	Ankle Jerks		
Salan and Schwartz	16	♀	0	+	0	Mild right hemiplegia left VI nerve	++	++		Recovered
Horlick and Bicknell	52	♂	0	0	+	Left hemiplegia	++	++		Died
Meyer	6	♂	+	+	+	0	0	0	58 lymphs	Improved
Walker	18	♂	+	+	+	Paraplegia	0	0		Died
Cordon	14	♂	0	+	+	Left ptosis	N	N	30 cells	Died
Bloch and Hassin	23	♂	+	0	+	Left Jacksonian convulsions left hemiplegia	++	++		Died
Hassin and Diamond	14	♂	+	0	+	Paraplegia	0	0	3 cells	Died
Pund and Mosteller	11	♂	0	+	+	Right VI and VII left VI polyneuritis	0	0	30 cells	Died
Chasanow	23	♂	+	+	+	Right hemiplegia aphasia	++	++		Improved
Sterling I	21	♀	+	—	+	Left hemiplegia	++	++		Improved
Sterling II	56	♂	—	0	0	Right hemiplegia	0	0	Normal	Improved
Spink	47	♂	—	0	0	left VII				Improved
Case 1	17	♀	+	+	+	Left hemiplegia left brachial palsy	++	++	Normal	Recovered

muscular weakness. The degree of muscular weakness in our second case and in that reported by Chasanow<sup>1</sup> was so severe that the diagnosis of polyneuritis was seriously considered. Nonne and Hopfner<sup>2</sup> were the first to call attention to the fact that the deep reflexes may be absent in the course of trichiniasis. In six of twenty-seven cases they found bilateral absence and in five unilateral absence, since their report cases presenting absent reflexes have been recorded by Staubli,<sup>3</sup> Gaisbock,<sup>4</sup> Salzer,<sup>5</sup> Eisenhardt,<sup>6</sup> Schonborn,<sup>7</sup> Fuchs<sup>8</sup> and others. In an effort to determine the frequency of loss of reflexes in trichiniasis, we have reviewed the records of 110 cases that have been admitted to the Boston City Hospital in the past twenty years. The knee jerks were absent in eleven of the 110 cases, or 10 per cent. Several authors have emphasized the coincidence of stiffness of the neck, Kernig's sign and

Pund and Mosteller<sup>16</sup> and Hassin and Diamond<sup>15</sup> have reported cases in which they found nodules composed of glial, endothelial and hematogenous cells, and a trichina embryo. In the case reported by Gruber and Gamper,<sup>25</sup> in addition to the inflammatory nodules there were embolic lesions from a trichinous endocarditis.

<sup>9</sup> Salan Joseph and Schwartz Benjamin. Trichinosis with Involvement of Central Nervous System. J. A. M. A. 90: 611 (Feb. 25) 1928.

<sup>10</sup> Horlick S. S. and Bicknell R. E. Trichinosis with Widespread Infestation of Many Tissues. New England J. Med. 201: 816 (Oct. 24) 1929.

<sup>11</sup> Meyer Jacob. Trichinosis. J. A. M. A. 70: 588 (March 2) 1913.

<sup>12</sup> Walker A. T. Trichinosis. Report of an Outbreak Caused by Eating Trichinosis Bear Meat in the Form of Jerky. J. A. M. A. 98: 2051 (June 11) 1932.

<sup>13</sup> Gordon M. B. Cases R. and Kaufman B. Encephalitis and Myocarditis in a Fatal Case of Trichinosis. J. Pediatr. 6: 667 (May) 1935.

<sup>14</sup> Bloch Leon and Hassin G. B. Trichinosis Complicated by Encephalitis. M. Rec. 91: 537 (March 31) 1917.

<sup>15</sup> Hassin G. B. and Diamond I. B. Trichinosis Encephalitis. Arch. Neurol. & Psychiat. 15: 34 (Jan.) 1926.

<sup>16</sup> Pund E. R. and Mosteller Ralph. Trichinosis. Demonstration of the Parasites in the Brain. J. A. M. A. 102: 1220 (April 14) 1934.

<sup>17</sup> Sterling W. Nervous Disturbances in Trichinosis. Res. Neurol. 1: 435 (April) 1925.

<sup>18</sup> Spink W. W. Cardiovascular Complications of Trichinosis. Arch. Int. Med. 56: 238 (Aug.) 1935.

<sup>19</sup> Parker F. J. The Eye Symptoms of Sporadic Trichinosis with Report of Cases. M. Rec. 72: 179 (Aug. 3) 1907.

<sup>20</sup> Thompson W. G. Trichinosis. A Clinical Study of Fifty Two Sporadic Cases. Am. J. M. Sc. 145: 157, 1910.

<sup>21</sup> Stoll H. F. Trichinosis. Two Cases Presenting Diplopia and One Polysporosis. J. A. M. A. 92: 791 (March 9) 1929.

<sup>22</sup> Bosch H. Taubheit bei Trichinosis. Munchen med. Wchnschr. 78: 436 (March 13) 1931.

<sup>23</sup> Knorr H. Beitrag zur Kenntnis der Trichenellenkrankheit d. Menschen. Deutsches Arch. f. klin. Med. 108: 137 1912.

<sup>24</sup> Frothingham C. A. Contribution to the Knowledge of the Lesions Caused by Trichina Spiralis in Man. J. M. Research 15: 483 1905.

<sup>25</sup> Gruber G. B. and Gamper E. Ueber Gehirnveränderungen bei menschlicher Trichinose. Verhandl. d. deutsch. path. Gesellsch. 22: 219 1927.

<sup>1</sup> Chasanow M. Meningitis bei Trichinose. Deutsche Ztschr. f. Nervenheilk. 103: 197 1928.

<sup>2</sup> Nonne and Hopfner. Klinische und anatomische Beiträge zur Pathologie der Trichinenkrankung. Ztschr. f. klin. Med. 15: 455 1889.

<sup>3</sup> Staubli C. Klinische und experimentelle Untersuchungen über Trichinosis und über die Eosinophilie um Allgemeinen. Deutsches Arch. f. klin. Med. 85: 1903.

<sup>4</sup> Gaisbock F. Beobachtungen über Trichinose. Wien. klin. Wchnschr. 22: 410 1909.

<sup>5</sup> Salzer B. F. A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy. J. A. M. A. 67: 579 (Aug. 19) 1916.

<sup>6</sup> Eisenhardt W. Bericht über eine kleine Trichinoseepidemie. Munchen med. Wchnschr. 65: 1406 1918.

<sup>7</sup> Schonborn S. Zur Diagnostik und Therapie der Trichinose. Deutsche med. Wchnschr. 44: 286 1918.

<sup>8</sup> Fuchs B. Ueber eine Trichinenepidemie in Erlangen. Munchen med. Wchnschr. 69: 1336 (Sept. 15) 1922.



Nonne and Hopfner<sup>2</sup> reported normal manifestations in the nerves and spinal cord of one patient in whom the reflexes were absent.

The pathologic mechanism of the production of neurologic symptoms in cases of trichiniasis are not all entirely clear. It can be readily understood how the inflammatory nodules in the brain and cord can produce symptoms, and it is also possible that small cerebral or meningeal vessels may be occluded by the organisms or by emboli from cardiac involvement and produce cranial nerve palsies and other focal signs. But the mechanism of the production of symptoms of generalized weakness and absent reflexes is not understood. It has been thought that these symptoms may be due to an involvement of the nerves by the trichinae or a toxin produced by them. This is supported by the finding of altered electrical reactions.<sup>20</sup> This theory has never been proved, however, since the only pathologic study<sup>2</sup> of the nerves was negative. It has been suggested that these symptoms may be due to the trichinous myositis. This is not a satisfactory explanation however since the reflexes are not lost so early in other forms of myositis.

#### CEREBROSPINAL FLUID

Trichinae have been found occasionally in the spinal fluid of patients with trichiniasis with or without nervous symptoms by Meyer,<sup>11</sup> Van Cott and Lintz,<sup>27</sup> Lintz,<sup>28</sup> Bloch,<sup>20</sup> Elliott,<sup>30</sup> Salzer<sup>\*</sup> and Cummins and Carson.<sup>31</sup> In addition, lymphocytes have been found in the fluids in several cases. Stoll<sup>21</sup> 90 and 92 per cubic millimeter, Fund and Mosteller,<sup>16</sup> 35 per cubic millimeter, Chasanow,<sup>1</sup> 11 per cubic millimeter, Meyer,<sup>11</sup> 50, 58 and 240 per cubic millimeter, and Gordon,<sup>13</sup> 30 per cubic millimeter.

We have examined the fluids from eleven patients with trichiniasis and the results were entirely within normal limits with regard to the pressure, cell counts, protein content, colloidal gold and Wassermann reaction. No embryos were found. Negative results are also reported by McDonald and Waddell<sup>32</sup> (thirteen cases) and others. It is perhaps worthy of note that the reports of the finding of trichinae in the fluids are chiefly in the older literature. In recent years, more reliance has been placed on the skin test and biopsy of the muscles, and the fluids are therefore probably not searched as carefully for organisms.

#### DIFFERENTIAL DIAGNOSIS

Cases of trichiniasis presenting neurologic complications must be differentiated from (1) polyneuritis, (2) poliomyelitis, (3) encephalitis or encephalomyelitis, (4) meningitis, (5) dermatomyositis and (6) periarthritis nodosa.

The diagnosis of trichiniasis can usually be established by the history of pork ingestion, by an eosinophilia in the blood (which may not develop until late, however), by the skin test and by biopsy of muscles. The cerebrospinal fluid is usually normal and helps to exclude poliomyelitis, encephalitis and meningitis.

Since skin lesions may be present in trichiniasis, the cases presenting muscular weakness may be confused

with dermatomyositis. It is differentiated, however, by the absence of widespread subcutaneous edema together with the history of pork ingestion, skin tests and biopsy.

Patients with periarthritis nodosa may have a polyneuritis with muscular weakness, absent reflexes and an eosinophilia in the blood.<sup>33</sup> The differential diagnosis in these cases depends on palpation of the arterial nodules or biopsy of them.

#### PROGNOSIS

The prognosis of the cases presenting only muscular weakness or absent reflexes is very good. The patients practically always recover with slight or no residual manifestations. The outlook is much more serious in the cases presenting mental symptoms or signs of focal lesions in the central nervous system, death occurring in six of the thirteen reported cases (46 per cent).

## EYE CHANGES IN HYPERTENSIVE TOXEMIA OF PREGNANCY

### A STUDY OF THREE HUNDRED CASES

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During the past three years I have made rounds in the Negro obstetric ward of Grady Hospital twice weekly and made records of the fundus oculi of all patients whose systolic blood pressure exceeded 140 or whose diastolic blood pressure exceeded 90. This study was undertaken with the hope of possibly correlating the retinal picture with the degree of clinical toxemia.

The first change to be observed in mild toxemia is usually a generalized narrowing of the lumen of the arterioles, which may be limited to a single arteriole or one of its branches. Almost as frequently, however, the first change is a localized narrowing appearing as a single spasm or as a series of spasms, usually in the first half of the retinal artery. The fact that there is usually no associated exaggeration of arterial reflex and no arteriovenous compression suggests that the lesion is spastic and not sclerotic. If the location and degree of the constrictions vary at subsequent examinations, it is proof of their spastic nature.

The degree of arterial lesions, especially the generalized constriction, follows closely the degree of clinical toxemia. In the more marked toxemias there is a combination of spasms and generalized constriction. Retinal edema usually first becomes visible near the upper and lower margins of the disk and radiates along the course of the retinal vessels. Retinitis, as shown by hemorrhages and exudates, is most often seen in the posterior third of the retina.

The arterioles may regain their normal caliber if there is a reduction of the blood pressure to normal sufficiently early. Wagener<sup>1</sup> states that if the lesions exist as long as ten days they have probably become sclerotic although they were originally angiospastic. Milius (according to Bergmann<sup>2</sup>), who made histologic examinations of the eyes of women who died in eclampsia, concluded that spastic changes in the retinal

<sup>26</sup> Nonne and Hopfner. Schonborn.  
<sup>27</sup> Van Cott, J. M. and Lintz, William. Trichinosis. J. A. M. A. 62: 680 (Feb. 28) 1914.  
<sup>28</sup> Lintz, William. Trichinosis and the Cerebrospinal Fluid. J. A. M. A. 66: 1856 (June 10) 1916.  
<sup>29</sup> Bloch, Leon. Trichinosis. Report of a Case with the Trichinella Larvae in the Spinal Fluid. J. A. M. A. 65: 2140 (Dec. 18) 1915.  
<sup>30</sup> Elliott, A. R. Trichinosis. J. A. M. A. 66: 504 (Feb. 12) 1916.  
<sup>31</sup> Cummins, W. T. and Carson, G. R. A Case of Trichinosis in which Embryos in the Spinal Fluid. J. A. M. A. 66: 1856 (June 10) 1916.  
<sup>32</sup> McDonald, E. P. and Waddell, C. C. An Epidemic of Trichinosis. J. A. M. A. 92: 449 (Feb. 9) 1929.

<sup>33</sup> Middleton, W. S. and McCarter, J. C. The Diagnosis of Periarthritis Nodosa. Am. J. M. Sc. 190: 291 (Sept.) 1935.

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<sup>1</sup> Wagener, H. P. Personal communication to the author.  
<sup>2</sup> Milius, A. quoted by Bergmann, M. B. Relationship Between Ophthalmology and Obstetrics. Am. J. Ophth. 17: 141-143 (Feb.) 1934.

vessels might exist for many weeks without producing organic changes. Bergmann stressed that the degree of spasticity might vary in direct ratio with variations in the blood pressure.

Silex<sup>3</sup> as early as 1895 stated that in cases of retinitis with definite vessel changes the prognosis was worse. Mjlius (quoted by Freeman<sup>4</sup>) in 1928 described spastic changes in the arterioles that he proved conclusively by fundus photographs. He showed that the changes in the arterioles preceded the retinitis and were the local cause of retinitis.

Wagener<sup>5</sup> in 1933 reported the study of a series of forty cases of hypertensive toxemia of pregnancy and concluded that spastic lesions of the arterioles were the most frequent and usually the primary sign of retinal involvement. They occurred in about 70 per cent of his cases, about 60 per cent of the spastic lesions disappeared with the termination of pregnancy and the return of the blood pressure to normal. In about 40 per cent of the cases organic lesions developed in the arterioles often with retinitis, and in such cases elevation of the blood pressure usually persisted. He considered diffuse retinitis of the albuminuric type as evidence of severe generalized arteriosclerosis rather than of nephritis. In a later paper he<sup>6</sup> stated his belief that the majority of these patients with retinitis would have persistent hypertension, since he showed by biopsy and at necropsy that the arterioles through the body were permanently damaged. It was logical for him to conclude that the development of retinitis in any case of toxemia of pregnancy was a serious menace to the future integrity of the vascular system of the mother and an urgent indication to terminate pregnancy. The series that I am reporting substantiates his conclusions.

Wagener, Schiotz and Masters have noted that when retinitis developed before the twenty-eighth week there was only about a 25 per cent chance of the patient giving birth to a living baby, even if pregnancy was continued to the stage of viability, and there was almost 100 per cent risk of permanent cardiovascular-renal injury developing. I have seen five patients with retinitis before the twenty-eighth week, only one, or 20 per cent, gave birth to a living baby. Three of these patients had exhibited hypertensive toxemia previously.

However, if the toxemia that precedes the twenty-eighth week is not accompanied by retinitis, the chance for a live baby is not much better. I have seen twenty-one patients, all of whom had moderate to severe hypertension and arterial changes without retinitis, of these only six, or 29 per cent, gave birth to living babies. In eighteen labor was induced artificially, if the pregnancies had been allowed to continue to the period of viability, the mortality rate would undoubtedly have been higher. In thirteen of these cases there had been previous pregnancies with hypertensive toxemia, with eclampsia in two cases. The average age was 30 years, and the parity varied from one to twelve.

In fifty-three cases of this series there was a record of a previous hypertensive toxemia of pregnancy. It is interesting to study the effect of the previous toxemia on a subsequent pregnancy. The average age in this group was 30.2 years. In 77.4 per cent there were vascular changes and in 9.4 per cent retinitis. In seven,

or 13.2 per cent, the fundus oculi was normal. Forty, or 75.5 per cent, of the babies were born alive. One hundred consecutive patients without previous hypertension or hypertensive toxemia of pregnancy were studied for comparison. Their average age was 24.2 years, and 91 per cent of the babies were born alive. Seventy-eight per cent showed arterial changes, and 12 per cent retinitis. Seventeen per cent had normal fundi. Wagener expressed the opinion that the presence of previously established organic changes in the retinal arterioles was not of itself a contraindication to a future pregnancy, in fact, his group of patients with previous hypertension showed fewer angiospastic changes than did another group of patients without previous hypertension, and the control group showed a higher incidence of retinitis. In my series if the cases with arterial changes together with retinal edema were classed as retinitis, the group with previous hypertensive toxemia of pregnancy would show a higher percentage of retinitis than would the group without previous hypertensive toxemia of pregnancy. Also, since nephritis and severe grades of hypertension are more frequent in those patients who have had a previous toxemia, I would conclude that one hypertensive toxemia of pregnancy contraindicates another pregnancy because the patient is more likely to suffer permanent cardiovascular-renal damage.

Urinalysis had been done on 280 of these patients and the general trend of the albuminuria fairly closely followed the severity of the hypertension and the occurrence of retinitis. But the absence of albuminuria agrees with Curtis,<sup>7</sup> who said that a rise in blood pressure might occur and persist throughout pregnancy without apparent evidence of renal disease. Forty-one per cent of the patients showed no albuminuria, even in class 3 (severe) hypertension there was no albuminuria in 32 per cent, and only a trace in 14 per cent. However, as the albuminuria increased from 1 plus to 4 plus there was proportionate increase in the frequency of fundus changes, especially retinitis, and also a proportionate increase in the frequency of eclampsia and class 3 hypertension. It seems then that the absence of albuminuria in these patients is without great significance, but a high grade of albuminuria indicates a severe grade of toxemia. This is likewise true of the presence of casts in the urine.

The phenolsulfonphthalein urinary and the non-protein nitrogen, creatinine and sugar content of the blood did not show changes in keeping with the degree of clinical toxemia.

Excessive gain in weight was exhibited by forty patients, that is, 10 pounds or more within a month, and in all cases this gain occurred during the last trimester. The fact that the average was 23.3 years, that only seven, or 17.5 per cent, had been pregnant more than five times (50 per cent were primiparas) and that thirty-nine, or 97.5 per cent, of the babies were born alive indicates that this unusual weight gain is not usually associated with an extremely severe toxemia. Only three, or 7.5 per cent, showed retinitis.

When the patients are classified (table 1) according to the severity of the hypertension, one sees the most striking increase in the frequency of eye changes on passing from class 1 to class 2 hypertension. Eye changes occur in 40.8 per cent of class 1, in 84.5 per cent of class 2 and in 98 per cent of class 3. Class 1 included those patients whose blood pressure did not

<sup>3</sup> Silex, quoted by Wagener<sup>6</sup>.

<sup>4</sup> Mjlius, K., quoted by Freeman, David, Retinal Angiospasm, Baltimore City Medical Society, Section of Ophthalmology, Dec. 7, 1932, Am. J. Ophthalmol. 16:3-1 (April) 1931.

<sup>5</sup> Wagener, H. P., Arterioles in Toxemia of Pregnancy, J. A. M. A. 101:140 (Oct. 28) 1933.

<sup>6</sup> Wagener, H. P., Lesions of the Optic Nerve and Retina in Pregnancy, J. A. M. A. 103:1910-1913 (Dec. 22) 1934.

<sup>7</sup> Curtis, A. H., Obstetrics and Gynecology, Philadelphia, W. B. Saunders Company, 1:1027, 1933.

exceed 150/100 before delivery, likewise, class 2 included those patients whose blood pressure ranged from 150/100 to 175/125, and class 3 included those whose blood pressure exceeded 175/125. The blood pressure range was determined by the variations over a period of several days or weeks. Thus it was seen that 53.3 per cent of the retinitis fell into class 3 and only 3.3 per cent fell into class 1, and 32.7 per cent of the patients in class 3 showed retinitis, whereas only 3.7 per cent of those in class 1 showed retinitis. Likewise fifteen cases, or 78.9 per cent, of the eclampsias occurred in class 2 and the remaining four, or 21.1 per cent, occurred in class 3.

When the patients were studied grouped according to the type of toxemia it was found that there was some ocular fundus change in 62.1 per cent (retinitis in 9.5 per cent) of the preeclamptic patients, in 84.0 per cent (retinitis in 11.6 per cent) of the nephritic patients and in 95.2 per cent (retinitis in 45.0 per cent) of the eclamptic patients. Thus it is quite certain that permanent damage is done to the mother's vascular-renal system by all three types of toxemia.

In this series of 300 patients 76.3 per cent showed abnormalities of the fundus oculi (table 2). The changes were classed as only arterial in 62.5 per cent and as retinitis in 13.2 per cent. The average age of the 300 patients was 25.3 years, whereas those who showed pathologic conditions averaged 26.2 years and those without such conditions averaged 21.8 years. The age increased from 23 years average in class 1 to 30.2 years in class 3. The twenty-one eclamptic women averaged 21 years of age, fifteen were primiparas and averaged 18.5 years of age, while the six multiparas with eclampsia averaged 27.5 years of age. Labor was induced on 108 patients, on thirty, or 60 per cent, of the patients with class 3 hypertension, and on fourteen, or 66.7 per cent, of the patients with eclampsia.

The maternal mortality in this series of 300 patients was two, or 0.07 per cent. Both patients were primip-

Retinal detachment is an infrequent complication in toxemias of pregnancy. In six cases, or 2 per cent, of this series bilateral detachment developed before delivery. All patients showed retinal arterial changes and diffuse retinitis, indicating that the type of toxemia was severe in each case. Vision was markedly impaired in each instance, but all improved rapidly as the retinas were completely reattached within ten days after

TABLE 2—Hypertensive Toxemia of Pregnancy in 300 Cases

	(300)		Average Age (25.2)	Labor Induced (108)	
	Number	Per Cent		Number	Per Cent
Any eye change	229	76.3	26.2	91	84.3
Arterial only	147	62.5	27.1	57	62.6
Arterial and edema	50	21.9	27.9	15	16.5
Retinitis	32	10.9	26.5	18	19.8
Edema only	4	1.8	20.7	1	1.1
Class 1	66	24.5	23.0	10	15.2
Class 2	175	67.0	24.9	57	66.7
Class 3	50	18.5	30.2	30	60.0
Preeclampsia	116	38.7	21.2	31	26.7
Eclampsia	21	7.0	21.0	14	66.7
Nephritis	16	5.3	29.0	63	72.3

\* Without eye changes 21.8

delivery of the baby. The average age of the mothers was 21 years, five were primiparas, and the other two were secundiparas. Only three gave birth to living babies. Three were classed as eclamptic. Two had class 2 hypertension and four had class 3 hypertension, all of which indicated that a severe toxemia was present in each.

#### CONCLUSIONS

1 The ophthalmoscope, I think, should be rated next to the sphygmomanometer as an instrument of diagnostic importance in the management of a case of hypertensive toxemia of pregnancy.

2 Generalized narrowing and localized spastic constriction of the retinal arterioles are the earliest changes in the fundus oculi, retinal edema, hemorrhages and exudates appear later if the toxemia progresses in severity.

3 When hypertension develops or increases during pregnancy, careful watch should be kept for angiospastic lesions of the retinal arterioles. Pregnancy should be terminated if the progress of these lesions cannot be controlled by conservative measures, and certainly before the onset of retinitis.

4 The arterioles may regain their normal caliber if there is a sufficiently early reduction of the blood pressure to normal.

5 The frequency and degree of lesions of the fundus oculi closely follow the severity of the hypertension.

6 If retinitis occurs before the twenty-eighth week of pregnancy there is only about a 25 per cent chance of the patient giving birth to a living baby, even if pregnancy is continued to the stage of viability, and there is almost 100 per cent chance of permanent vascular-renal injury developing. If toxemia precedes the twenty-eighth week of pregnancy and is not accompanied by retinitis, the prognosis is slightly better.

7 A previous hypertensive toxemia of pregnancy contraindicates a future pregnancy; the chance of the patient developing eclampsia is less, but the prospect of a live baby is not as good, and the chance of developing permanent vascular-renal injury is greater.

8 Retinal detachment occurs in about 2 per cent of hypertensive toxemias of pregnancy. The detachments usually become reattached within ten days after termination of the pregnancy.

478 Peachtree Street

TABLE 1—Classification of Antepartum Blood Pressure in 271 Cases According to Severity

	1		2		3	
	Num- ber (66)	Per Cent (24.5)	Num- ber (100)	Per Cent (57.0)	Num- ber (50)	Per Cent (18.5)
Any eye change	27	40.8	131	84.5	49	98.0
Arterial only	21	77.7	80	61.1	26	30.0
Arterial and edema	1	11.1	26	27.5	7	14.0
Retinitis	1	3.7	1	9.9	10	32.7
Edema only	2	7.4	2	1.5		
Arterial only	21	16.7	80	79.0	26	20.6
Arterial and edema	3	6.6	36	79.0	7	1.4
Retinitis	1	3.3	13	4.0	16	53.3
Edema only	2	50.0	2	70.0		
Preeclampsia	41	31.8	55	79.4	7	6.8
Eclampsia	1	1.1	10	76.9	4	21.1
Nephritis	20	16.8	80	57.0	39	26.2

paras and both were eclamptic. Their ages were 38 and 18 and there was no history of previous hypertension. In these cases labor was induced during the eighth and seventh months of pregnancy. The older patient gave birth to a living baby, and the younger patient died before the baby was delivered. The older patient showed rather marked arterial changes and diffuse retinitis before death, but the younger patient was lost seen eight days before the onset of convulsions and ten days before death, and at that time she showed marked constriction of the entire tree of the retinal artery, and variations in caliber of almost every arterial branch.

## TRICHLOROETHYLENE INTOXICATION

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Since 1915, when Oppenheim recommended trichloroethylene as a therapeutic agent, numerous investigators have published contradictory opinions regarding the efficacy of the drug to relieve the pain of trigeminal neuralgia. Reports of beneficial results following the use of the drug range from 85 per cent complete relief, as reported by Plessner,<sup>1</sup> to only 5 per cent complete relief, as reported by Seelert<sup>2</sup> in a later paper. More recently the drug has been used with some success as a hypalgescic in the treatment of angina pectoris.<sup>3</sup> The further clinical applicability of the drug has been investigated by Striker and his associates,<sup>4</sup> who have successfully employed it to induce general anesthesia during surgical operations. The clinical observations of these investigators, together with the published results of laboratory studies of the effect of the purified drug on laboratory animals, have led to the general feeling that the relatively pure drug is without harmful effects unless massive overdoses are administered.<sup>5</sup> After observing more than 300 cases of anesthesia produced by trichloroethylene, Striker and his associates concluded that "pure trichloroethylene has no harmful effects when properly inhaled in such quantities as are required to produce analgesia and anesthesia." Herzberg<sup>6</sup> reported that the liver, spleen, kidneys, diaphragm, pancreas, heart muscle, lungs, adrenals and pectoral muscles taken from three dogs that were killed by an overdosage of trichloroethylene after being deeply anesthetized with the drug for periods ranging from two and one-half to three and one-half hours showed no gross or microscopic changes. Joachimoglu<sup>7</sup> obtained similar results, indicating that the drug does not cause demonstrable pathologic changes.

On the other hand, the industrial utilization of this chemical has resulted in numerous instances of poisoning, and the literature is replete with instances of such accidents. Alice Hamilton<sup>8</sup> has reviewed the cases of industrial poisoning due to trichloroethylene and mentions 284 cases with twenty-six deaths. As against this impressive toxicity exhibited by the drug in industry, there are few reported instances of toxic symptoms in which the drug has been used therapeutically. Some have expressed the opinion that this difference in the appearance of toxic symptoms has been caused by the presence of adventitious substances and decomposition products present in the relatively impure commercial products. On this point, Glaser<sup>9</sup> has expressed the opinion that "it certainly appears as if the present trichloroethylene is not the drug responsible for the toxic symptoms mentioned in Plessner's workers." Various other writers have ascribed this difference in action to the length of time during which the drug was inhaled or to the amount of it that was ingested.

Because of the paucity of observations following prolonged administration of large doses, further con-

fusion exists concerning the clinical effects of trichloroethylene. The official comment in New and Non-Patented Remedies states that the actions of trichloroethylene have not been investigated comprehensively, and that it was introduced in therapeutics following some observations on man. As a matter of fact, although there are more than 280 cases of industrial poisoning with trichloroethylene reported in the literature, there is only one reported case of severe intoxication following the accidental and improper use of therapeutic trichloroethylene.

The salient features that this lone case presented are as follows:<sup>10</sup>

A woman, aged 34, had a history of chronic addiction to morphine and ether and of a successful treatment of that condition. A dental neuralgia developed and her dentist prescribed trichloroethylene to allay the pain. After the need for the remedy had disappeared she continued to take the drug and finally increased the amount until she was taking 50 Gm a day. The symptoms that developed resembled those of "narcotism" and included tremor, nausea, reduced will power and marked emotionalism with mild delirium. Recovery followed promptly after withdrawal of the offending drug.

During the past year two similar instances of the malign effects of prolonged trichloroethylene overdosage have been observed in the Johns Hopkins Hospital.

The first patient was admitted to the private wards. Since it was impossible for the patient to give any history at the time of his admission, the following data were obtained from his family:

CASE 1—A retired business executive, aged 52 had led a very tense and active life. His habits, in general, were normal. Alcohol was used occasionally in moderation. Three years before the time of admission he began to have pain in the right side of the face. Initially it was thought that the pain was of dental origin and therefore two of his teeth were extracted, but the symptoms persisted. After a time the character of the pain indicated its nature and a diagnosis of trigeminal neuralgia was made. There were periods of several consecutive months during which there was no discomfort, but in spite of various treatments it recurred invariably. Two years before he came to the hospital he began to use a proprietary preparation of trichloroethylene prescribed by his physician. He gradually increased the dose inhaled. About ten days before admission pains developed in the shoulders, elbows, legs and knee which were attributed to a "grippal attack," although the usual symptoms of such an infection were lacking. He increased the dosage of trichloroethylene until he began to be drowsy and listless. It is known that he continued to take the drug until he was admitted, although no accurate information was available concerning the amount consumed, it was said that he used a full bottle (about 4 ounces, or 120 cc) during the two days before he was admitted to the ward. During this period he developed a "thickness of speech," difficulty in concentrating and a marked tendency to "grope for words." He became very unsteady while standing, and his wife stated that he appeared as though he were drunk. The mental disturbances became progressively more marked.

On admission to the hospital the first impression of the house staff was that the patient was in a catatonic stupor. He could hardly stand without assistance, appeared very drowsy and manifested a tendency to lapse into sleep if left alone, and his movements were sluggish and inaccurate. There were evidences of moderate loss of weight, but no other physical abnormalities were noted. Since the patient was unable to cooperate the neurologic examination was of necessity incomplete, but objectively there were no neurologic changes. A psychiatric consultation was requested and it was the opinion of the psychiatrist that a concentration difficulty was the essential feature. The patient was disoriented for time and place and very confused. There was a moderate degree of aphasia and dysarthria.

From the Johns Hopkins Hospital  
1 Plessner W. Klin. Wchnschr. 53 514 (May 8) 1916  
2 Seelert M. A. West. J. Surg. 39 901 (Dec.) 1931  
3 Krantz J. C. J. Pharmacol. & Exper. Therap. 54 327 (July) 1935  
4 Striker C. Goldblatt S. Warm I. S. and Jackson D. E. Anesth. & Analg. 14 68 (March April) 1933  
5 Glaser M. A. West. J. Surg. 39 901 (Dec.) 1931  
6 Herzberg A. Anesth. & Analg. 13 203 (Sept Oct.) 1934  
7 Joachimoglu G. Klin. Wchnschr. 58 147 1921  
8 Hamilton Alice. Industrial Toxicology. New York Harper & Brothers 1934 p. 218  
9 Glaser M. A. Treatment of Trigeminal Neuralgia with Trichloroethylene. J. A. M. A. 96 916 (March 21) 1931

Diagnostic possibilities suggested by this clinical picture included epidemic encephalitis and bromide intoxication. A lumbar puncture yielded spinal fluid which was determined to be normal and examination of the urine failed to disclose the presence of bromides. The administration of trichloroethylene was discontinued immediately and the patient improved rapidly. Within three days his mental clarity was restored almost completely. At this time he complained of numbness of the face, but there was no anesthesia of the area innervated by the trigeminal nerves. Coincident with the return of normal mental reactions the patient complained of slight pain in the right side of the face, but this symptom was readily relieved by small and infrequent doses of acetylsalicylic acid. His convalescence was rapid and uninterrupted. No specific therapy was employed. At the end of two weeks his mental acuity had returned completely and no psychologic defects were noted. There was some residual nervousness and weakness and a moderate degree of manition which disappeared after several weeks of rest and roborant measures. A communication from the patient, eight months after he had left Baltimore indicated that there were no aftermaths of his illness.

CASE 2—A woman, aged 52, came to the outpatient department because of pain in the right lower part of the jaw and tongue. Trichloroethylene was prescribed but as this failed to relieve the pain a partial section of the fifth nerve root at the level of the pons was performed. The operation did not have the desired result, for the pain persisted. Pending the day on which a second operation was to be done trichloroethylene was prescribed again in doses of 20 drops three times a day. The details of the immediate sequence of events were never revealed, but it is known that the patient succeeded in obtaining a large quantity through the wholesaler and that she took increasing amounts of it on a handkerchief and inhaled it repeatedly. Over a period of several days she is said to have used about 6 ounces (180 cc). A fulminating psychosis developed with acute hallucinations and a striking change of personality. The patient had been a composed and temperate individual on this occasion she is said to have come downstairs to dinner, seated herself at the table and commenced to devour a ham. Attempts by the family to control the bulimia were thwarted by the patient's strange behavior. At their approach she would desist from her depredations, scowl at her kinsmen and reply to their remonstrations by growling and making queer noises. So successful were her intimidating gestures that she was able to hold them at bay until she had gormandized the whole ham. Then she half-walked, half-crawled up the stairs and, having reached the top attempted to stand up but fell backward and down the stairs and fractured one of the lumbar vertebrae. She was brought to the hospital, where a suitable cast was applied. The bizarre symptoms that she had manifested prior to her admission disappeared rapidly after the administration of the trichloroethylene was stopped. At no time during this period of observation did she complain of pain in her face and subsequent reports received several months later, indicated that the pain had not recurred, nor were there any residual effects noted which might have been in any way attributable to the overdosage of trichloroethylene.

Most of the symptoms noted have been observed also following the industrial use of trichloroethylene. In addition, trichloroethylene as used industrially is capable of provoking symptoms that have not been observed following the use of therapeutic trichloroethylene. For purposes of comparison, certain outstanding effects ascribed to the use of industrial trichloroethylene are listed below.<sup>8</sup> Particular attention is called to the fact that none of the symptoms listed here have ever been observed following the use of therapeutic trichloroethylene.

The effects are

- Cerebral manifestations pointing to lesions in the capillary walls
- Epileptoid seizures
- Corneal anesthesia and painless keratitis
- Swelling of the optic disk

Optic neuritis

Optic atrophy with blindness

Anesthesia in the area innervated by the trigeminal nerve

Paralysis of the fifth nerve persistent after seven months

Trophic changes leading to the loss of teeth

Persistent auditory dysfunction

Progressive loss of speech

Many writers have noted a difference in the general effects of the chemical depending on whether it was absorbed accidentally in industry or as a result of therapeutic administration. The difference in effect has been variously attributed to (1) the presence of adventitious substances in the industrial trichloroethylene, (2) the length of time of administration, (3) the amount inhaled or (4) a combination of these several factors. Striker expresses the opinion that the pathologic manifestations noted in industrial cases were due to contaminations in the trichloroethylene or more likely to some other causes. Prior to the observations reported in this article there were no reported cases to indicate what the effects of large amounts of therapeutic trichloroethylene inhaled over relatively long periods of time might be. The failure of these cases of intoxication following large and prolonged dosage of the chemical to evince any of the graver symptoms attributed to industrial trichloroethylene poisoning tends to emphasize the suggestion made by the earlier investigators, i. e., that the toxic effects noted among the industrial workers may have been attributable, in some measure at least, to adventitious substances or decomposition products of trichloroethylene. On this point a significant inference may be drawn from the fact that, although there followed grave sequelae in the industrial cases, the symptoms that occurred in the clinical intoxications were ephemeral and disappeared promptly after withdrawal of the drug. Striker emphasized this opinion when he concluded that after general anesthesia with trichloroethylene there is a notable absence of postoperative nausea, vomiting, depression and the like. Perhaps one of the most significant observations in establishing the difference between the effects of therapeutic and uncontrolled industrial absorption of trichloroethylene is the fact that although in industrial cases facial anesthesia and abolition of the corneal reflex were not infrequent, these effects were never observed in any patient who had received trichloroethylene therapeutically, unless a sufficient amount of the drug had been given to induce general anesthesia.

#### SUMMARY

1 Many cases of industrial poisoning with trichloroethylene have been reported, but there is only one recorded instance of a toxic syndrome following the prolonged therapeutic administration of the chemical. Two additional cases are presented here.

2 The symptoms observed in the latter group were due to a disturbance of the central nervous system as manifested by mental confusion, disorientation, inability to concentrate, amnesia, aphasia, dysarthria, ataxia and analgesia without anesthesia of the area innervated by the trigeminal nerve.

3 In view of these observations it seems likely that the original supposition is correct, namely, that the cases of industrial poisoning were due partly to adventitious substances and that all the manifestations noted in the industrial cases of so-called trichloroethylene poisoning were not necessarily effects of trichloroethylene per se.

4 Although proprietary preparations of trichloroethylene are thought to be relatively harmless remedies if used in prescribed amounts, the cases presented here indicate that this therapeutic agent is capable of producing grave states of intoxication if the suggested dosage is exceeded or if the administration of the drug is unduly prolonged

## EFFECT OF INJECTION OF BACTERIAL FILTRATE ON BROWN-PEARCE RABBIT EPITHELIOMA

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The employment of bacteria or their products in the treatment of malignant disease is not new. One need only refer to the work of Coley,<sup>1</sup> who for some forty-five years has reported favorably on the use of bacterial preparations in certain neoplasms. More recently Beebe and Tracy<sup>2</sup> were able to observe regression and disappearance of transplanted tumors in dogs that had been given injections of bacterial filtrates. Complete destruction of a transplantable mouse tumor was produced by Shear<sup>3</sup> in a high percentage of cases with filtrates of *Bacillus coli*. It is not my purpose here to review the rather extensive literature that has accrued on this general subject. However, reference must be made to the recent publication of Connell,<sup>4</sup> since it instigated the present study. Connell reported that symptoms of some patients suffering with carcinoma could be ameliorated by the administration of certain bacterial filtrates containing enzymes, which he calls "Ensols." These Ensols Connell prepared by inoculating with *B. histolyticus* a tube containing cancer tissue immersed in physiologic solution of sodium chloride. The cultures were incubated anaerobically at 37.5 C. for from four to six days, during which time the cancer tissue was digested presumably by ferments generated by the bacteria and specific for the type of cancer protein provided in the medium. The sterile filtrate obtained by passing the fluid through a Berkefeld candle was found to produce "much more rapid lysis of the cancer cells than took place in control tubes undergoing sterile autolysis." According to Connell's statements, clinical improvement of certain patients having carcinoma resulted from the injection of these Ensols. The growth of visible tumors was checked with softening and absorption. Patients having pain as a prominent symptom obtained relief with Ensol and were enabled to get along with a diminished dosage of sedatives. As far as is known to me, Gye<sup>5</sup> is the only one to have published subsequently experiments similar to those of Connell. He was unable to observe any effect of the injections of Ensol on the growth of mouse tumors.

Because of obvious restrictions incidental to the use of human material, the present study was undertaken

on animals, in the hope thereby of gaining accurate experimental information on the mode of action and on the effects of similar bacterial filtrates. The Brown Pearce rabbit epithelioma of the testicle would appear to be a particularly suitable test tumor and was used in these experiments. Its genealogy and biologic behavior are well known. It is a highly malignant animal tumor which, unchecked, runs a rapidly fatal course in a large proportion of cases.

### METHOD

*Inoculation of Animals*—Unless recorded to the contrary, the tumor tissue used for inoculation and for the preparation of the bacterial filtrate was obtained from nontreated and otherwise normal rabbits. This viable tumor tissue was removed either from the primary tumor growth or from a metastatic nodule. Tissue from one to four representative regions of the tumor mass was prepared for microscopic examination. Other tissue from the same region was minced with scissors until the individual particles were about the size of wheat grains. These were handled under aseptic precautions throughout and introduced with a trocar into the central portion of the testis, two or three such particles being inoculated into each rabbit. This is the standardized technic employed for more than three years in the division of radiology<sup>6</sup> and has been used in the inoculation of more than 1,000 rabbits. The rabbits in this series which had received such tumor inoculations were divided into two almost equal groups, one half receiving the bacterial filtrate, the other serving as controls.

*Preparation of the Bacterial Filtrate*—The bacterial filtrate was prepared according to the directions of Connell for the production of Ensol. Masses of tumor tissue were removed aseptically from rabbits anesthetized with ether. As much as possible of the adjacent tissue, either from the site of the primary tumor or from a metastatic nodule, was carefully dissected away, so that the remaining tissue was quite homogeneous, thus fulfilling the supposed requirement that only one type of protein be present in the medium. This tumor tissue, which was of the same type as that used for inoculation of other rabbits, was then immersed in physiologic solution of sodium chloride, the proportion of tissue to the solution being approximately 1:10. After the mediums were inoculated with *B. histolyticus*,<sup>7</sup> the culture was rendered anaerobic with a layer of sterile petrolatum and incubated at 37.5 C. for from five to eight days. During this time lysis of the tissue could be readily observed. Fibrous tissue and other undigested residue settled out. The supernatant fluid was passed through a Berkefeld candle, and the filtrate, after having passed the test of sterility in this final form, was now ready for injection. It will be noted that this filtrate was prepared without exception from the precise type of tumor tissue with which the rabbits were inoculated. Furthermore, rabbits 78 and 81 received injections of filtrate prepared from tumor tissue removed from their own bodies. A sizable colony of rabbits with tumor was available to supply tissue for fresh filtrate. At no time was the filtrate more than 16 days old when injected.

*Injection of Filtrate and Further Care of Animals*—Preliminary injections of 0.2 cc of the filtrate were

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<sup>1</sup> Coley W B Contribution to the Knowledge of Sarcoma Ann Surg 14 199 220 1891 The Treatment of Malignant Tumors by Repeated Inoculations of Erysipelas Am J M Sc 105 487 511 (May) 1890 The Treatment of Sarcoma of the Long Bones Ann Surg 97 434 460 (March) 1933

<sup>2</sup> Beebe S P and Tracy Martha The Treatment of Experimental Tumors with Bacterial Toxins J A M A 49 1493 1498 (Nov 2) 1907

<sup>3</sup> Shear M J Studies on the Chemical Treatment of Tumors Am J Cancer 25 66 88 (Sept.) 1935

<sup>4</sup> Connell H C The Study and Treatment of Cancer by Proteolytic Enzymes Canad M A J 33 364 370 (Oct.) 1935

<sup>5</sup> Gye W E Treatment of Cancer by Proteolytic Enzymes Brit M J 2 760 (Oct 19) 1935

<sup>6</sup> The author is indebted to Dr Stafford Warren and Mr Otto Sahler Division of Radiology Department of Medicine of the University of Rochester School of Medicine and Dentistry for supplying the original stock tumor and for instruction in the method of making the inoculations.

<sup>7</sup> American type culture collection No 611



given under the skin of the ear to determine possible toxicity or other deleterious effect. It was soon learned that rabbits could tolerate with impunity dosages as large as 4 cc given intravenously or subcutaneously. Larger doses were not given and it is believed that no untoward effects have immediately followed any of the injections. The usual procedure was to inject the rabbits daily, the intravenous and subcutaneous routes being used on alternate days. The routine dosage was 0.6 cc. The rabbits were kept in individual cages and received a diet of oats, cabbage and alfalfa. Tap water was provided ad libitum. Aside from the matter of injections of the filtrate, the controls received the same

night. However, in all cases autopsies were promptly performed. The tissues were preserved in Zenker's fixative and stained with the usual hematoxylin and eosin. We were thus enabled to accumulate a fairly complete series of slides of tissues coming from the control and the injected groups, as well as in cases in which biopsies were taken from the same animals before and after treatment.

## EXPERIMENTAL STUDY

The almost invariable finding that variation is the rule in biologic response certainly must be regarded in the interpretation of phenomena pertaining to cancer.

TABLE 1—Effect of Injections of Filtrate on Rabbits Previously Inoculated with Tumor Coming from Untreated Hosts\*

	Rabbit Supplying Tumor	Rabbit Receiving Tumor	Time After Tumor Inoculation when Injec- tions Began Days	Total Number of Injections	Longevity Following Inoculation with Tumor Days	Comment
Experimental group A	859	74	17	41	58	Died from tumor metastases
	859 74 75	76	17	138	155 113 97	Living (?) immune to tumor
	and 207				and 43	
	859	77	17	52	109	Killed—extremis
Control	859	73			64	Killed—extremis
	859	75			42	Killed—extremis
	859	78	77	8	80	Died from tumor metastases*
Experimental group B	858	79	14	50	94	Died from tumor metastases
	858	80	14	138	152	Living tumor growth appeared arrested
	858	81	66	8	72	Died from tumor metastases*
Control	858 74 75 and 207	82			152	Living (?) immune to tumor
Experimental group C	903	93	13	61	74	Died from tumor metastases
	903	94	13	31	44	Killed—extremis
	903	95	13	44	47	Killed—extremis
Control	903	96			96	Killed—extremis
	903	96			129	Living tumor growth appeared arrested
	903	97			129	Living tumor growing

\* Recipients of the tumor had had no preliminary treatment. Injections were continued to date or until the animals died.

TABLE 2—Experiment 2\*

	Rabbit Supplying Tumor	Rabbit Receiving Tumor	Number of Prophylactic Injections	Total Number of Injections	Longevity Following Inoculation with Tumor Days	Comment
Experimental group D	75	76	20	138	113	Living (?) immune no take
Control	75	82			113	Living (?) immune no take
Experimental group E	903	88	10	58	48	Died from tumor metastases
	903	89	10	141	131	Living tumor growth static or regressive
	903	90	10	71	61	Killed extremis
Control	903	87			131	Living tumor growth static or regressive
	903	91			113	Died from tumor metastases
	903	92			70	Died from tumor metastases

\* In the E group, tumor coming from untreated hosts was transferred to rabbits having had preliminary or prophylactic injections of the filtrate. Injections were then continued to date or until the animals died.

treatment as did the experimental animals. The animals were periodically weighed, the weights being considered an index of their general condition. At frequent intervals calipers were used to measure the rate of growth of the primary tumor, graphic records being kept. Note was also made of the appearance and growth of metastases. When in the course of events, both in the treated and in the untreated group, cachexia supervened as a result of the malignant growth and it appeared that the animal would in all probability die within a few hours, the animal would be killed, so that fresh tissue might be available for microscopic study. When this occurred, the term "killed—extremis" was applied in the accompanying tables. Even with this precaution, an animal would occasionally die during the

growth and destruction. Innate resistance to cancer is probably not constant in different individuals or animals. Numerous factors doubtless determine whether or not a fragment of cancer tissue will take root and thrive within a new host. The behavior of a large number of transplants of cancer will have to be observed before an entirely satisfactory basal or standard response can be determined or anticipated. But even allowing for these variables I believe that the present series of experiments will permit of certain deductions. Only a portion of the observations lend themselves to statistical treatment. Primarily for convenience, however, pertinent data have been arranged in tabular form. As criteria for the determination of the effects of injection of the bacterial filtrate on the

growth of the Brown-Pearce rabbit epithelioma, the following were used

- 1 The percentage of takes
- 2 The rate of growth of the primary tumor
- 3 The development of metastases
- 4 The regression or disappearance of the tumor
- 5 The longevity of the animal after inoculation with tumor
- 6 The microscopic appearance of the tissue

Table 1 summarizes the first experiment. Injections of filtrate were started on the seventeenth, fourteenth and thirteenth days following the inoculation of three groups of rabbits with the tumor fragments. Rabbit 76 appeared to be immune to this tumor, since four attempts at establishing the tumor transplants were unsuccessful. Rabbit 78 was originally selected as a

venous and subcutaneous injections of filtrate. After this the rabbits were given inoculations with the tumor taken from untreated animals having actively growing tumor. Subsequent injections also were given, the total number of injections being indicated in the table. The results in group D may well be thrown out. The tumor transplants coming from rabbit 75 apparently fell on uninfertile soil, as rabbits 76 and 82 have repeatedly shown themselves to be immune. In group E, however, it will be noted that the span of life of the rabbits receiving the injections was not prolonged.

Another experiment consisted of inoculating three rabbits with tumor from a rabbit that had received injections of filtrate on the preceding eight days. No further treatment was given these three animals. The

TABLE 3—Experiment 3 \*

	Rabbit Supplying Tumor	Number of Injections of Filtrate to Rabbit Supplying Tumor	Rabbit Receiving Tumor	Injections Given to Rabbit Receiving Tumor		Longevity After Inoculation with Tumor Days	Comment
				Before Inoculation with Tumor	Total Number of Injections		
Experimental group F	74	41	76	41	138	97	Living (?) Immune to tumor
	74	41	19	25	99	74	Killed—extremis
	74	41	99	25	122	97	Living tumor growing
	74	41	100	25	99	74	Killed—extremis
Control	74	41	82			97	Living (?) Immune to tumor
	74	41	201			97	Living tumor growing
	74	41	202			68	Died from tumor metastases
Experimental group G	94	31	12	34	99	67	Killed—extremis
	94	31	13	34	122	83	Living tumor growing
	94	31	15	34	117	83	Died from tumor metastases
Control	94	31	203			56	Killed—extremis
	94	31	204			43	Died from tumor metastases

\* In these two groups tumor from two rabbits which had received courses of injections of filtrate was inoculated into other rabbits which had already received preliminary or prophylactic injections of filtrate. Injections were then continued to date or until death of the animals.

TABLE 4—Experiment 4 \*

	Rabbit Supplying Tumor	Number of Prophylactic Injections	Total Number of Injections	Rabbit Receiving Tumor	Number of Prophylactic Injections to Rabbit Receiving Tumor	Total Number of Injections	Longevity After Inoculation Days	Comment
Experimental group H	90	10	71	205	19	89	70	Living tumor growing
	90	10	71	206	19	89	70	Living tumor growing
	90	10	71	207	19	45	26	Died of tumor metastases
Control	90	10	71	211			70	Living (?) Immune
	90	10	71	212			70	Living tumor growing
	90	10	71	213			62	Died of tumor metastases

\* In the experiment tabulated here three rabbits which had received prophylactic injections of filtrate were inoculated with tumor taken from a rabbit which had had ten prophylactic injections and sixty-one subsequent injections. Injections into the three rabbits were continued to date or until death of the animals.

control. However, when the tumor growth was 77 days old and metastases were noted in the pelvis, the primary tumor was removed and the rabbit then given injections. Eight injections of filtrate prepared from this rabbit's own tumor apparently did not materially alter the fatal course of the disease. In group B the tumor growth in rabbit 80 had become apparently static. The animal remained in good clinical condition after 138 injections of filtrate, even though metastatic nodules persist. The primary tumor has diminished somewhat in size but still persists. Rabbit 81, which as rabbit 78 originally served as a control, received eight injections of an isofiltrate without apparent effect. Control rabbit 82 in this group is apparently immune to this type of tumor, since he withstood four attempts at establishment of the tumor. When one compares the longevity of the rabbits in the three groups of experiment 1, it is apparent that the injected animals did not seem to possess a striking advantage over the controls.

In experiment 2 (table 2) a group of rabbits was given a 'prophylactic' or preliminary course of intra-

transplants of tumor took in every case. Today, seventy-one days following the inoculation, two rabbits are showing progressive cachexia. In the third rabbit the tumor growth is apparently arrested or is perhaps even regressing, although the primary tumor still measures 3 by 2.5 by 0.5 cm in its various diameters.

In experiment 3 (table 3) tumor tissue was removed from rabbits that had just received a course of treatment consisting of daily injections (forty-one and thirty-one) of filtrate. This tissue was immediately transplanted to two other groups of rabbits, which had then just completed a course of preliminary or prophylactic injections of filtrate. The injections were then continued without interruption to date or until the animals died. Examination of table 3 shows that the length of life or condition of the rabbits was not significantly altered by the injections.

In experiment 4 (table 4) ten preliminary or 'prophylactic' injections of the bacterial filtrate were given to rabbit 90 on the days immediately preceding inoculation with tumor. On the sixty-one days following the

inoculation with tumor the injections were continued the rabbit receiving in all seventy-one injections. Tumor fragments from this rabbit were now transplanted into six rabbits. Three of these, rabbits 205, 206 and 207, had by this time already received nineteen prophylactic injections. The injections of filtrate into these three rabbits were continued to date or until the death of the animal. At present four of the six rabbits in this group are living. In two of the treated rabbits the tumors and metastases are apparently still growing. One treated animal died on the twenty-sixth day following inoculation with tumor. In the control group one rabbit died of tumor metastases on the sixty-second day. Examination of table 4 will show that no apparent protection was conferred on the rabbits receiving the filtrate.

In experiment 5 the tumor was first passed through two hosts that had received injections of the filtrate before and after the inoculation with tumor. The first of these, rabbit 90, had received ten prophylactic injections and sixty-one injections after the inoculation with tumor. Tissue from this rabbit was then transplanted into rabbit 207, which by this time already had received nineteen prophylactic injections. Injections were continued in this rabbit, twenty-six more being given

is by extension along the spermatic cord to the pelvis. Metastatic nodules are frequently found in the retroperitoneal and omental glands. The kidneys were secondarily involved in a large percentage of cases. Metastases were also commonly found in the liver, spleen, lungs and mediastinum. Less often they are found under the skin or in the eyes. The abdominal and renal metastatic tumors are readily palpable in the living animal. Frequently the larger tumors become necrotic in their centers presumably because of inadequate blood supply. Special pains were taken to observe whether more necrosis occurred in the treated or in the nontreated groups of animals. No constant difference could be found. Microscopic preparations likewise failed to reveal any recognizable and characteristic morphologic changes as a result of the injections. In no case did the microscopic picture present evidence that the treatment destroyed the actively invasive appearance of the tumor.<sup>8</sup>

## SUMMARY

The sterile filtrate of *B. histolyticus* growing on the Brown-Pearce rabbit epithelioma was injected under a variety of experimental conditions into rabbits having the same type of tumor from which the filtrate was

TABLE 5—Experiment 5\*

	Rabbit Supplying Tumor	Number of Prophylactic Injections	Total Number of Injections	Rabbit Receiving Tumor	Number of Prophylactic Injections to This Rabbit	Total Number of Injections	Longevity After Tumor Inoculation Days		Comment
Experimental group I	207	19	40	214	13	56	47	Living	tumor growing
	207	19	40	215	13	56	47	Living	(?) immune no take
	207	19	40	216	13	56	41	Living	tumor growing
Control	207	19	40	217			43	Living	tumor growing
	207	19	45	218			43	Living	tumor growing

\* The P and F<sub>1</sub> generations of the hosts having tumor received prophylactic injections prior to inoculation with tumor. Injections of filtrate were also continued afterward until tumor tissue was removed for transfer to F<sub>1</sub> and F. Three rabbits of the latter group (number 214, 215 and 216) were likewise given prophylactic injections of the filtrate. Injections following inoculation with tumor were continued to date.

Tumor from the second rabbit (207) was then inoculated into the five rabbits listed in table 5, which summarizes this experiment. If one discounts the case of rabbit 215, in which the tumor failed to take, it will be noted that the two rabbits which received the injections are apparently in the same clinical condition as are the two untreated controls. The tumor has thus passed through three generations of treated hosts and at the present time appears to be capable of unchecked growth, since all the rabbits in which the tumor took have growing primary and metastatic tumors, even while the daily injections are being continued.

Further evidence to indicate that injection of the filtrate does not alter significantly (1) the number of takes, (2) the percentage of tumors the growth of which has become static or regressive (3) the progressive growth of the tumors and (4) the number of animals dying of tumor metastases is illustrated in table 6. This table presents a general summary, without regard to the particular type of treatment in the various experiments. Rabbits 78 and 81 might perhaps be more properly listed under the nontreated column, as they received only a small number of injections before they died of tumor metastases. Since the number of controls practically equaled the number of injected animals, the striking parallelism in the clinical course of the various groups seems significant.

**Examination of Tissue**—No difference could be observed in the growth habits of the tumor in the treated and the nontreated animals. The usual mode of dissemination of the tumor inoculated in the testis

prepared. Injections of this filtrate were found to have no apparent effect on the rate of growth of the tumor or on the microscopic appearance of the tissue. Even when the tumor was propagated through two genera-

TABLE 6—General Summary of the Preceding Tables\*

No takes		Tumor Growth Static or Regressive		Tumor Growth Progressive		Died of Tumor Metastases	
Treated	Not treated	Treated	Not treated	Treated	Not treated	Treated	Not treated
76	82	99	87	99	97	74	73
210	211	99	96	13	201	77	75
		206	210	205	205	78	91
				214	209	79	81
				216	212	81	81
					217	85	202
					218	90	204
						91	217
						93	
						100	
						19	
						12	
						207	
						17	

The figures represent the identification numbers of the rabbits.

tions of hosts both of which had received injections of the bacterial filtrate before and after inoculation with the tumor, its highly malignant potentialities were not checked.

<sup>8</sup> The author is indebted to Dr. William B. Hawkins, associate professor of pathology, University of Rochester School of Medicine and Dentistry, for reviewing with him all the microscopic slides prepared in connection with this study.

## RESULTS OBTAINED BY THE USE OF FEVER THERAPY

IN THREE TYPES OF CASES USUALLY REFRAC-  
TORY TO OTHER TYPES OF TREATMENT

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The principles underlying the use of fever therapy in the treatment of certain infectious and allergic conditions are only partially understood. It is not my purpose in this report to enter into a theoretical discussion of these principles. I wish to report the striking results obtained by the use of fever therapy in cases of gonorrheal ophthalmia, Sydenham's chorea, and a severe case of status asthmaticus.

### GONORRHEAL OPHTHALMIA

This case is reported because of the excellent and immediate results following treatment with fever therapy.

J. D., a Negro boy, aged 6 years, was admitted to the Eye Service of the Cincinnati General Hospital Feb. 20, 1935, chiefly because of a sore left eye of six days' duration. There was at first swelling and redness of the lids followed shortly by a profuse yellowish white discharge. There was no previous history of eye disease or genito-urinary infection. The temperature was 100 F., pulse 110, respiration rate 20. The patient was normally developed and well nourished. The right eye was completely normal. The left eye showed markedly swollen lids, much photophobia and lachrimation. There was severe conjunctivitis with ciliary injection and profuse purulent discharge. Two ulcers were present in the cornea, one was large and centrally placed with an irregular outline, and the other was circular, and the bases of both were covered with a gray purulent exudate. The left preauricular gland was palpable. A gram stain of the pus from the left eye showed many pus cells with only gram-negative intracellular diplococci in great numbers.

February 21 the patient was given fever therapy by means of the Kettering Hypertherm. A temperature was maintained between 106 and 107 F. for seven hours. After this there was less injection and the ulcers appeared as scar with no exudate. There was little discharge, and careful search of stain specimens showed a few pus cells and no organisms. Although the eye continued steadily to improve and no gonococci were demonstrated, two more fever treatments of six hours each between 106 and 107, were given. February 26 there was no photophobia, conjunctival injection or discharge. The small corneal ulcer was completely healed and there was only a superficial scar and a nebulous opacity at the site of the larger one.

The patient was discharged, March 13, with only a small nebular opacity at the site of the corneal ulcer. Examination later revealed further contraction of the scar.

This result was duplicated in another equally severe case of gonorrheal ophthalmia in May 1935.

### SYDENHAM'S CHOREA

Six patients with Sydenham's chorea were treated with fever therapy by means of the Kettering Hypertherm. All were girls and their ages ranged from 8 to 15 years. There was no other outstanding manifestation of the rheumatic state, either active or inactive, except for the chorea. These cases were of the most severe type, the patients having been sick for from two weeks to ten months. They had been kept at complete bed rest and had been treated with all the ordinary

measures and with much sedation. Still the condition remained of the most violent type, requiring continuous restraints to prevent self injury. Because of the difficulty in feeding, of vomiting and of excessive movements, all were very poorly nourished. All were given from three to five treatments at weekly intervals, each treatment consisting of from three to four hours, with temperature between 106 and 107 F. Shortly after the first treatment in each case there were fewer choreiform movements, and the patients rested with fewer sedatives. Improvement was slow but definite, and in from two to four weeks after the last treatment all involuntary movements had disappeared and the patients ate and slept normally. In only two cases was there the suggestion of choreiform movements under the stress of excitement. These cases have been followed for from two to eight months, and there has been no recurrence of symptoms in any. The following case is typical.

M. R., a white girl, aged 15 years, admitted to the Cincinnati General Hospital, April 7, 1935, had been noted to have queer facial grimaces two weeks previously. These had increased in severity, followed by excessive choreiform movements of the arms and legs and finally the inability to remain in bed without restraint. The patient could not speak and there was incontinence of urine and feces. The past history was irrelevant except for several acute infections of the upper respiratory tract during the winter months.

The patient was fairly well nourished. There were excessive involuntary movements of the entire body. The temperature was 100 F., the pulse 110, and the respiration rate 20. The blood pressure was 110 systolic, 80 diastolic. The only abnormal physical manifestations were an injected pharynx and dental caries. All deep tendon reflexes were hypoactive. The abdominal reflexes were absent and there were no positive reflexes of the pyramidal tract. The Wassermann reaction was negative. Examination of the blood revealed hemoglobin 80 per cent, red blood cells 5,000,000 and white blood cells 8,000 with a normal differential count. Urinalysis gave normal results.

April 11 the patient was given her first fever treatment, after which she was somewhat quiet. The chorea remained about the same until after the second treatment, a week later, at which time there was noticeable definite improvement. She continued to improve, the temperature became normal, and she was able to speak. She was given two more treatments the last one on May 20. There has been no evidence of chorea since the last treatment, and after two months she is still well.

### BRONCHIAL ASTHMA

Eight cases of severe intractable bronchial asthma were treated with fever therapy by means of the Kettering Hypertherm, at the Cincinnati General Hospital. All were of the most severe type, having presented this disease for from two to twenty years. Multiple sensitivities to bacteria, foods and pollens were present in each case. All patients had had severe attacks of status asthmaticus at repeated intervals, oxygen therapy having to be administered. Three of the patients had required considerable morphine, and frequent daily injections of epinephrine were necessary in all cases. The relief offered has been complete in three cases, lasting from two to six months. In four cases followed for from one to twelve months there has been only occasional mild recurrence, and in one case there was little or no improvement. No patient received more than four treatments at weekly intervals, each one consisting of from three to five hours of fever between 106 and 107 F.

This type of therapy is not recommended as effecting consistent cure or even as a means of alleviating all bronchial asthma, but it is worth trying in severe asthmatic cases that respond to no other form of therapy. The following case report is an example of the type of case treated.

C B, a white woman, aged 29, had symptoms of bronchial asthma in 1922, at which time she was 16 years of age. Her attacks increased in severity and duration and she was admitted to the Cincinnati General Hospital for the first time in 1929. At that time a complete physical examination was negative except for undernourishment and the typical manifestations of bronchial asthma. The sputum was mucoid and showed many eosinophils. Roentgen examination of the chest was entirely negative. Autogenous vaccine therapy was started with organisms from the upper respiratory tract.

Skin reactions were positive to inhalants, foods and bacteria. The patient had received more or less continuous vaccine therapy for the past four years, as well as the other ordinary measures for the treatment of bronchial asthma.

Since 1929 she had been admitted to the hospital repeatedly, many times being in such severe respiratory distress as to require continuous oxygen therapy for several days. Repeated roentgenograms revealed an increasing degree of emphysema. Jan 30, 1935, she had her first fever treatment lasting for three hours, between 106 and 107 F. After the first two hours she could breathe freely. Although there were no evidences of asthma and she was symptom free, she was given two more treatments at weekly intervals. She has been followed closely up to July 1, 1935, and she has remained free from bronchial asthma and has gained 15 pounds (68 Kg).

1310 Medical Arts Building

## Clinical Notes, Suggestions and New Instruments

### FATAL IODODERMA FOLLOWING INJECTION OF IODIZED OIL FOR PULMONARY DIAGNOSIS

D W GOLDSTEIN M D FORT SMITH ARK

Cases of iododerma and iodism<sup>1</sup> from iodized oil have previously been reported. In a review of the literature however, no fatal case of iododerma has been encountered following the injection of iodized oil into the lung.

A very interesting case of fatal iododerma was recently reported by Eller and Fox.<sup>2</sup> These authors also reviewed the literature on the subject. Their case presented a polymorphous type of eruption. The individual lesions varied from small fleshy papules and crusted nodules to large fungating granulomatous tumors.

The dangers of the injection of iodized oil have been well expressed by the Council on Pharmacy and Chemistry of the American Medical Association.<sup>3</sup> The fact is emphasized that this is distinctly a surgical procedure involving more or less risk, and that before such a diagnostic measure is instituted the advantages and disadvantages of such a procedure should be carefully considered.

#### REPORT OF CASE

**History**—R C a man aged 47 was referred to me by Dr J D Riley, superintendent of the Arkansas State Sanatorium, with the following history. He had been admitted to the sanatorium May 17, 1934, complaining of weakness and loss of weight. The physical examination revealed scattered rales at both bases. The rest of the physical examination was essentially negative.

From the Cooper Clinic

<sup>1</sup> Firth J O. Iodism. J A M A 100 110 (Jan 14) 1933.  
Carmichael D A. Iodine Poisoning and Iodism from Lipiodol. Canad M A J 26 319 320 (March) 1932.

<sup>2</sup> Eller J J and Fox E C. Fatal Iododerma. Arch Dermat & Syph 24 745 (Nov.) 1931.

<sup>3</sup> Dangers of the Injection of Iodized Oil. J A M A 99 1946 (Dec 3) 1932.

Two days before entering Sparks Memorial Hospital of Fort Smith, Ark. 20 cc of iodized oil<sup>4</sup> was injected into the lung for diagnosis. No unusual symptoms were noted following the injection. Immediate films showed no bronchiectasis. The following morning the fever was 101.4 F. At this time a papulopustular eruption was noted over the forehead and face which gradually spread to the upper part of the chest.



Distribution of lesions and bullae

and the extensor surface of the arms and hands. The patient became nauseated and finally entered the hospital in a stupor, the result, no doubt, of a severe toxemia.

**Examination**—The physical examination was essentially negative with the exception of the skin.

The patient presented an eruption that was more or less limited to the face and upper extremities, shown in the accompanying illustration. Over the extensor surfaces of the arms and the back of the hands were pea to hickory nut size discrete, thick walled bullae and pustules, some of which were definitely hemorrhagic. The face was markedly edematous and the eruption here was more diffuse in character. Most of the bullae and pustules had ruptured, forming large crusted moist areas. In addition many verrucous and fungating lesions were noted. The scalp was also involved, but to a lesser extent. The tongue was moderately swollen and presented some hemorrhagic areas. The rest of the oral mucosae showed lesions of the vesicobullous type. Because of the marked lingual edema and lesions in the mouth, examination of the pharynx, larynx and adjacent structures was impossible.

The urine was tested for the presence of iodine. This was repeatedly positive, the specific gravity was 1.012, other observations were albumin 2 plus, granular casts 2 plus, a few blood cells and hyaline casts.

Examination of the blood showed hemoglobin 84 per cent, red blood cells 4,240,000 and leukocytes 21,000, with a differential count of polymorphonuclears 81 per cent, mononuclears 5 per cent and lymphocytes 14 per cent. The Kolmer Wassermann and Kahn tests were both negative.

Serum from the bullae was negative for iodine. Culture, however, showed a scattered growth of staphylococci.

The diagnosis was iododerma and acute glomerulonephritis.

**Treatment**—Treatment consisted of the injection of physiologic solution of sodium chloride and dextrose intravenously. In spite of great caution there was rather marked irritation of the kidneys, due in part no doubt, to excretion of the iodides. Because of this further saline injections were discontinued. The rest of the general treatment was symptomatic in nature. Local treatment consisted of soothing applications of lotions and wet dressings.

**Clinical Course**—In spite of therapy new lesions developed and the toxemia increased. The lesions, which were at first

<sup>4</sup> Lipiodol Lafay was used.

present over the arms and face, gradually spread over most of the body. Three days prior to death, large bullae developed but soon ruptured, leaving moist, raw surfaces. The nephritis became more marked and the patient died twenty-six days after the onset of the present illness. Unfortunately postmortem examination was refused.

#### SUMMARY AND CONCLUSIONS

In a case of fatal iododerma following the injection of iodized oil into the lung for diagnosis there was no question concerning the diagnosis as evidenced by the history of injection of the drug into the bronchi, typical cutaneous lesions and demonstration of iodine in the urine. Although absorption from the bronchial mucosae is negligible it is entirely conceivable that in a markedly sensitive or allergic individual a sufficient quantity could have been absorbed to be responsible for the eruption. Death no doubt, ensued as a result of a nephritis plus an overwhelming toxemia.

Cooper Clinic Building

#### A MODIFIED STAIN FOR STIPPLE CELLS IN LEAD POISONING

RUTH A. MCKINNEY, PH.D. AND SAUL KOSENZWEIG, M.D.  
DETROIT

The increasing recognition of lead poisoning as an industrial hazard has stimulated the search for a rapid reliable stain for the stipple cells found after lead absorption. Further experimentation with the Henderson stain<sup>1</sup> has demonstrated that Wright's blood stain may be substituted for the staining mixture recommended by Henderson. With this change it is possible not only to note and to count the stipple cells but also to make the usual differential count of the white blood cells at a single examination.

The three reagents required are kept for convenience in covered Coplin jars. The technic is as follows:

Fix dried smear in acetone-free methyl alcohol for from three to five minutes and transfer directly to Wright's stain (staining time predetermined for each lot of stain used), wash in tap water and transfer to dilute ammonia water (25 cc of stronger ammonia water in 1,000 cc of distilled water), dip up and down rapidly until blue color runs from slide, wash in tap water, dry and examine.

The finely stippled or coarsely dispersed 'basophilic aggregations' in the red blood cells appear distinctly black against the gray or pink of the stained cell. The white blood cells retain the usual nuclear stain.

The ratio of lead-affected cells to the normal red cells is determined by an adaptation of the Fomo platelet counting technic.<sup>2</sup> A minute opening in a paper disk dropped into the ocular diaphragm gives a suitable counting field. The stipple cells and the normal red cells in each field are counted but tabulated in separate columns, until 250 normal red cells have been counted. The number of stipple cells is then multiplied by 4 giving the ratio of such cells to 1,000 normal cells. The number of thousands of red blood cells per cubic millimeter multiplied by the number of stipple cells per thousand cells gives the approximate number of lead stipple cells per cubic millimeter of blood.

This staining method offers nothing fundamentally new, its chief advantage lies in the fact that a simplification and combination of two previous technics makes possible:

1 A rapid detection and enumeration of stipple cells in a spread which is also adequately stained for a differential count of the white blood cells.

2 The utilization of reagents usually found in any physician's office or clinical laboratory.

3 A technic which stains dried smears two months old as satisfactorily as fresh dried smears.

936 Holbrook Avenue

From the North End Clinic  
1 Deuel W. E. Henderson Improved Stain for Stipple Cells  
J. A. M. A. 98 733 (Feb. 27) 1932  
2 Fomo A. Ueber vergleichende Blutplättchenuntersuchungen. Ein Leit-zug zur Frage der Methodik der Gerinnungsbestimmungen. Cor. Bl. Schweiz. Ärzte 45 1503 1915

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER Secretary

### HOGAN BREVATHERM SHORT WAVE DIATHERMY UNIT, MODEL 8800 (TWO-TUBE) ACCEPTABLE

Manufacturer McIntosh Electrical Corporation, Chicago

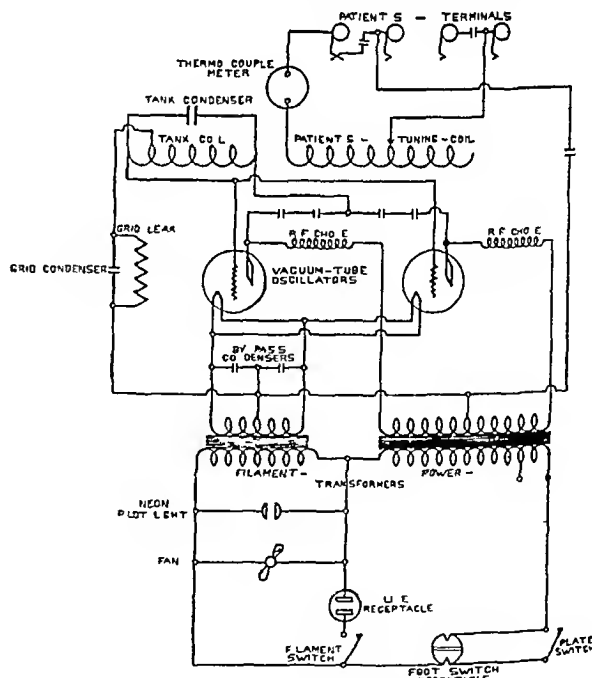
This unit is designed to produce electric current oscillations of high frequency which are suitable for the production of heat within the body tissues and for surgical tissue cutting.

The circuit is of a well known, alternating current operated push-pull oscillator type. The pick-up coil of the patient's circuit is inductively coupled to the oscillator or tank coil. The wavelength is approximately 233 meters. Under maximum load the power input is less than 1,000 watts. Since there is no acceptable method for measuring the output of short wave machines, this value is not given. The temperature rises of the transformers after operating the machine at full load for two hours came within the limit of safety prescribed by the Council. Both cuff and pad electrodes are furnished as standard equipment. The shipping weight of the unit is about 175 pounds.

At the request of the Council the machine was investigated and the data were submitted for consideration. The tissue heating effect in the human thigh was observed. Cuff electrodes were applied to the thigh, one posterior to the hip, the other anterior to the knee. Thermocouples were introduced into the deep lying tissues and also into the subcutaneous tissues. They were placed at a point midway



Hogan Brevatherm Short Wave Diathermy Unit Model 8800



Schematic diagram of circuit

between the hip and the knee, or midway between the cuff electrodes, and removed during the time of treatment. After twenty minutes treatment, the machine being operated at the patient's tolerance the temperature rise and final temperature (average of five tests) were observed to be comparable to those temperatures obtained by conventional diathermy which was



used as a control. The conventional diathermy currents were applied to the thigh by triplate electrodes, one on the medial and one on the lateral aspect.

The cuff electrodes used in the investigation were made of metal surrounded by thick protecting felt and enclosed in a sateen bag. Several layers of toweling, a felt pad or both materials, were placed next to the skin to absorb perspiration.

Burns may be produced by this machine, but they may be avoided by ordinary precaution their likelihood to occur is much less than with conventional diathermy.

This unit was tested in a clinic acceptable to the Council, there the reports of the investigation were confirmed and the machine was considered as giving satisfactory service for the purposes for which it is intended.

In view of the favorable report on the machine, based on its performance when cuff electrodes were used, the Council on Physical Therapy voted to include the Hogan Brevatherm Short Wave Diathermy Unit, Model 8800, in its list of accepted apparatus.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**SOLUTION LIVER EXTRACT-VALENTINE**—A solution of a water-soluble fraction extracted from edible livers of mammalian animals.

**Actions and Uses**—Solution liver extract-Valentine is used in the treatment of pernicious anemia and sprue.

**Dosage**—Solution liver extract-Valentine is administered orally. Ninety cubic centimeters, or 3 ounces, is the average daily dose, this is usually divided into three parts and administered at the end of each meal. The daily amount may be reduced to 60 cc, or 2 ounces, when the erythrocyte count reaches 4.5 million per cubic millimeter. If the count tends to increase above this level the quantity may be reduced to 30 cc or 1 ounce, daily. The maintenance dose should be varied in keeping with the requirements of the individual patient.

Manufactured by the Valentine Company, Inc., Richmond, Va. No U. S. patent. U. S. trademark 298,963.

To prepare solution liver extract-Valentine livers from edible animals are ground directly into water. The mixture is heated to approximately 90°C to coagulate protein and to inactivate liver enzymes. The coagulated protein is then removed by filtration. Approximately 9 per cent of glycerin and 0.2 per cent of sodium chloride are added to the finished product.

**AMYTAL** (See New and Nonofficial Remedies, 1935, p. 94)

The following dosage form has been accepted:

Tablets Amytal ¼ Grain

**ORTAL SODIUM** (See New and Nonofficial Remedies, 1935, p. 100)

The following dosage form has been accepted:

**Kapsels Ortol Sodium with Phenacetin**. Each kapsel (hermetically sealed capsule) contains oritol sodium 1½ grains (0.1 Gm.) and aceto phenetidin (phenacetin) 3 grains (0.2 Gm.).

**CALCIUM GLUCONATE** (See New and Nonofficial Remedies, 1935, p. 139)

The following dosage form has been accepted:

**Ample Compound Solution of Calcium Gluconate 10%**. 10 cc U. S. S. P. Co.—A solution containing in each 10 cc calcium gluconate 1 Gm. (15½ grains), dextrose anhydrous 0.5 Gm. (7½ grains), citric acid 0.037 Gm. (½ grain), and lactic acid 0.1 Gm. (1½ grains).

Prepared by the United States Standard Products Company, Woodworth, Wis. U. S. patent applied for.

**BISMUTH SUBSALICYLATE** (See New and Nonofficial Remedies, 1935, p. 123)

The following dosage form has been accepted:

**Bismuth Salicylate in Oil U. S. S. P. Co.** A suspension of bismuth subsalicylate U. S. P. 2 grains (0.13 Gm.) and chlorbutanol 1 per cent in neutral olive oil to make 1 cc. Marketed in bottles containing 1 ounce.

Prepared by the United States Standard Products Company, Woodworth, Wis.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



FRANKLIN C. BING, Secretary

ANCHOR BRAND NUT OLEOMARGARINE  
REX NUT BRAND OLEOMARGARINE  
SUNLIGHT BRAND NUT OLEOMARGARINE  
WISCONSIN MAID BRAND NUT OLEOMARGARINE  
GOLDEN CREST BRAND OLEOMARGARINE  
OHIO MAID BRAND OLEOMARGARINE  
(CONTAIN 01 PER CENT OF SODIUM BENZOATE)

**Manufacturer**—The Cudahy Packing Company, Chicago

**Description**—Oleomargarine prepared from hydrogenated, refined coconut and peanut oils, pasteurized cultured milk, salt and an emulsifying agent, a derivative of glycerin. Contains 01 per cent of sodium benzoate.

**Manufacture**—Hydrogenated refined coconut and peanut oils are warmed and churned with pasteurized, cultured milk, salt and a derivative of glycerin. The resulting emulsion is solidified by spraying through ice water sprays, refrigerated, molded and automatically wrapped and packed in cartons.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	15.0
Total solids	85.0
Ash	2.7
Sodium chloride	2.6
Fat (ether extract)	81.4
Protein (N × 6.25)	0.4
Carbohydrates (by difference)	0.5

**Calories**—74 per gram 210 per ounce

### CELLU BRAND CAULIFLOWER, WATER PACKED

**Distributor**—Chicago Dietetic Supply House, Inc., Chicago

**Packer**—Eugene Fruit Growers Association, Eugene, Ore.

**Description**—Canned cauliflower, packed in water.

**Manufacture**—Selected cauliflower, delivered immediately after harvesting, is trimmed, cut into segments, and packed into cans by hand. The cans are filled with water, heated, sealed and processed.

**Analysis** (submitted by distributor) —

	per cent
Moisture	95.1
Total solids	4.9
Ash	0.5
Fat (ether extract)	0.4
Protein (N × 6.25)	1.1
Crude fiber	0.7
Starch (diastase method)	1.8
Carbohydrates other than crude fiber (by difference)	2.2

**Calories**—0.2 per gram 6 per ounce

**Claims of Distributor**—Choice quality cauliflower packed without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

### HAWAIIAN PINEAPPLE JUICE

1 NEW LIBERTY BRAND

2 WHAT CHEF BRAND

**Distributors**—1 Prospect Supply Company, Yonkers, N. Y.

2 Rhode Island Wholesale Grocery Company, Providence, R. I.

**Packer**—Hawaiian Pineapple Co., Ltd., San Francisco

**Description**—Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL June 3, 1933 p. 1769)

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SATURDAY, MAY 9, 1936

## UNSOLVED PROBLEMS IN AMEBIASIS

Despite the remarkable advance in knowledge of amebas and the infections which they cause, many important problems remain for further study. Craig,<sup>1</sup> long a distinguished student of parasitologic problems, has recently reviewed three such problems. The first concerns the question of the existence of an avirulent strain of *Endamoeba histolytica*. The absence of definite symptomatology in many persons harboring this parasite has led, he states, to the belief that there must exist strains that are nonpathogenic and that such strains may live in the human intestine for indefinite periods. Brumpt and Sinic have made observations tending to show that there is another ameba which is nonpathogenic but identical in morphology and life history with *Endamoeba histolytica*. Many other observers, however, have failed to confirm these results. Craig himself states that he has repeatedly produced dysenteric symptoms and ulcerative lesions in kittens with strains of *Endamoeba histolytica* from symptomless carriers. In one instance a cultural strain obtained from a presumably healthy carrier and cultivated for more than four years was pathogenic to kittens at the end of that period. He emphasizes the point, therefore, that the absence of symptoms in amebic infection does not mean that the strain that is present is not virulent as far as the production of lesions is concerned. The question of the existence of a harmless species must, he believes, be considered as still remaining unsolved, but it is of great importance.

The problem of variation in virulence of strains of *Endamoeba histolytica* is closely related. Whether the differences in virulence that exist are fixed characteristics of each strain or whether the virulence of a strain may be increased or decreased by cultivation and passage through experimental animals or man needs to be determined. As long ago as 1914 an increase in virulence in a strain of *Endamoeba histolytica* from a relapsing case of amebic dysentery after passage

through kittens was reported. Since that time a number of investigators, especially Meloney and Fryc, have appeared to corroborate the fact of variation in virulence of different strains. Frequently it has been noted that the virulence of some strains may be raised by passage through animals. A number of other investigators, however, fail to confirm this view. Craig concludes that there probably exist certain strains of *Endamoeba histolytica* which are naturally more virulent than other strains. Up to now, however, no strain of this organism has been demonstrated to be nonpathogenic or capable of living in the lumen of the bowel of man for indefinite periods without producing lesions. He feels also that the virulence of certain strains can be raised by continuous passage through kittens and dogs but that final proof that such an increase in virulence occurs during passage through man is not yet available.

Finally, the question of immunity to *Endamoeba histolytica* has received relatively little study. The only evidence of natural immunity is afforded by the epidemiology of the infection, but the data available are so scattered and so confusing that it is impossible to arrive at a conclusion regarding the true existence of natural immunity. In all regions where the incidence of amebic infection is high, a considerable proportion of the inhabitants escape infection although exposed apparently as much as those infected. This suggests but does not prove the existence of natural immunity. The spontaneous recovery of some persons from infection also points in this direction. Evidence of acquired immunity may be suggested from study of the so-called immune bodies produced in the blood stream by inoculation with cultures of *Endamoeba histolytica* or with antigens made from such cultures. Evidently specific complement fixing bodies occur in the blood of animals and human beings infected with *Endamoeba histolytica* and can be produced in animals by the injection of antigens prepared by the extraction of cultures of this parasite. The fact that such bodies exist and can be produced experimentally and that complement fixation occurs not only in persons suffering from amebic dysentery but also in carriers without symptoms and that in fact the reaction is stronger in such carriers than in those having active symptoms demonstrates that there exists a reaction between the tissues of the body and the parasite, resulting in the production of these substances. The relation of complement fixing bodies to immunity is at present unknown. Craig thinks it reasonable to conclude that these bodies indicate a reaction which in all probability leads to more or less immunity in infected animals or human beings, but as far as scientific data are concerned there is no support of this belief except that furnished by the epidemiology of the infection.

These are only a few of the numerous problems in amebiasis remaining to be solved. As has been repeatedly pointed out in these columns and elsewhere, the

<sup>1</sup> Craig, C. F. Some Unsolved Problems in the Parasitology of Amebiasis. *J. Parasitol.* 22: 1 (Feb.) 1936.

knowledge that amebic infections are widespread in temperate as well as in tropical and semitropical lands indicates the need for active investigation along these lines

#### EIGHTIETH BIRTHDAY OF SIGMUND FREUD

On May 6 the world celebrated the eightieth birthday of Sigmund Freud. The difficulty of evaluating the influence of a contemporary is doubled in the case of Sigmund Freud, the inevitable phases of reaction and consternation always provoked by new discoveries have not yet been passed. The influence of the freudian concepts has been universal and not restricted to the theory and therapy of mental diseases. The concept of the unconscious has deeply modified the subjective attitude of human beings toward life and necessitated a thorough reorientation of our philosophic outlook. Human beings seem instinctively to resent the acknowledgment forced on them by Freud that even their own personalities are removed from the sovereign influence of their conscious selves and that they are not even complete masters of their own actions. The discovery of the unconscious has led to a striving to bring the unconscious under the domination of consciousness, this is the essence of the technic of psychoanalysis.

In spite of the tremendous influence of Freud on contemporary thought, it is still difficult to appreciate fully the nature and extent of his influence on his own field, modern psychiatry, and on medicine in general. Modern psychiatry is in a phase of fermentation and turbulent change. Its development has been characterized by two features: (1) the effort to give an accurate description of the clinical pictures of mental disturbances and classify them according to descriptive nosologic units, and (2) the attempt to follow in the study and therapy of psychiatric disturbances the principles prevailing in the rest of medicine. Perhaps these tendencies have interfered with the development of psychiatry as a science. Psychiatry, in its concern to live up to the scientific standards of the rest of medicine, developed a distaste toward psychologic phenomena. These psychologic phenomena seemed reminiscent of obscure medieval ideas about evil spirits, exorcism and general metaphysical concepts. The emphasis on precise description became exaggerated into unwillingness to explain, and explanation and understanding were confused with speculation. Freud's great accomplishment consisted in introducing standardized psychologic methods for the investigation of psychologic phenomena and in observing psychopathologic processes in the continuity of psychologic causality. This attempt was often considered contradictory to the attempt to understand psychic phenomena in terms of biology. Freud, however, emphasized biologic orientation. His scientific credo is that though psychic life must be understood in terms of psychology, this knowledge must be gradually integrated with the somatic knowledge of the central nervous system and the process of life in general.

Psychoanalysis is offered at the same time as a method of therapy. Freud developed most of his theoretical ideas from observations made during his attempts to cure patients suffering from mental ailments. Psychoanalysis is set forth as etiologic therapy based on a knowledge of the nature of the pathologic condition instead of therapy based on empiricism. Only this etiologic orientation can explain the manner in which a therapist who began with the modest aim of helping hysterical patients discovered the unconscious mind as an entirely new territory of research.

Psychoanalysis provides an approach to a large group of sufferers who previously were almost neglected by medicine—the psychoneurotic. In this field temporary improvement obtained by the purposeful or unintentional use of suggestion has often been misjudged as a real therapeutic result. It is too early to pass final judgment on the therapeutic efficiency of psychoanalysis. Like all medical methods of therapy, it has definite limitations. In this field as in others, the constitution of the patient is the unchangeable factor.

Sigmund Freud was born of Jewish parentage on May 6, 1856, at Freiburg in what is now Czechoslovakia. When 18 years old he entered the medical school in Vienna and from the beginning his interest was in the direction of psychiatry. The teachers who had the deepest influence on Freud's development in the university in Vienna were the great classic physiologist Ernst Brücke and the psychiatrist Meynert. The early phases of Freud's work in medicine were spent in the laboratory. He became an expert in brain anatomy and made valuable contributions to the pathology of infantile paralysis. In 1885 he was appointed lecturer in neuropathology on the basis of his histologic and neurologic publications. On Brücke's recommendation he received a traveling fellowship which he used to go to Paris as a student of Charcot in the Salpêtrière. This trip may be considered one of those fortuitous events which so often become decisive for the further fate of individuals. No other man had a greater influence on Freud's later development than Charcot, unquestionably the greatest authority in neurology of those days. Charcot was an empiricist and a clinician in the best sense. His great reverence for facts enabled him to emancipate himself from the current theories and dogmas in medicine and to recognize the psychologic element in hysterical phenomena. By the help of the technic of hypnosis Charcot in Paris and Bernheim and Liebeault in Nancy had been able to demonstrate experimentally the effect of unconscious psychic forces on behavior and neurotic symptom formation. A second decisive coincidence in Freud's life was his meeting with Joseph Breuer. Freud's enthusiasm for his new field was intensified by Breuer's reports of his patient Anna, a hysterical young woman whom Breuer tried to cure through hypnosis. In a sense this patient may be considered as the inventor of the therapeutic

principle of psychoanalysis To the free flow of her speech during hypnosis, by which she gave expression to forgotten and repressed traumatic experiences, she gave the name "talking cure" Though Freud eventually discarded the use of "cathartic hypnosis," even in the most modern technic of psychoanalysis the principle of this "talking cure" is still present in the form of free association

From this time Freud's life began to center more and more around his efforts to understand and cure first mental disturbances and then the personality as a whole For a long time he worked entirely alone and even severed his collaboration with Breuer, whose vision was more limited and who shrank back from those unusual phenomena which the deeper penetration into the unconscious soon revealed It was not until 1902 that a number of young medical men began to gather around Freud With few exceptions all have devoted their lives to the development of psychoanalysis

Among the first to join Freud in his study of unconscious processes were the representatives of the Zurich school of psychiatry, most prominent of whom have been Bleuler, Jung, Eitingon and Abraham Whereas Jung later became one of the dissenters and Bleuler's attitude has been checkered by repeated alternations between enthusiasm and antagonism, Eitingon and Abraham adhered consistently to the fundamental facts and principles of psychoanalysis and had a great share in its development and organization

In 1910 an international psychoanalytic organization was formed, which, except for the period of the World War, has held an international congress every second year At present almost every country of the world has psychoanalytic societies, the members of which are almost entirely, and in America exclusively, physicians The first psychoanalytic institute in which training in psychoanalysis was conducted in a systematic way was founded by Eitingon in Berlin in 1919 Now a number of such institutes exist in different cities of Europe and America The first psychoanalytic society in America was founded in New York under the leadership of Brill The Chicago Psychoanalytic Institute, now partially supported by the Rockefeller Foundation, has been chiefly devoted, under Dr Franz Alexander, to the study of psychophysiologic interrelationships as the most important means of integrating the freudian concepts with the medical and biologic sciences

Today psychoanalysis and its followers are still somewhat isolated from the rest of medicine No doubt the first bitter emotional reactions against the startling concepts of Freud are responsible for this isolation Seen from historical perspective, however, the thirty year period of isolated development of psychoanalysis is not remarkable The fight for the scientific study of the human body by dissection lasted for centuries, the unbiased objective study of the human personality must prevail over greater emotional obstacles

Late in his career Freud is receiving official recognition in many places His first recognition came from contemporary leaders of thought and literature, such as Thomas Mann in Germany and Romain Rolland in France The city of Vienna made him an honorary citizen, and in 1930 he received the Goethe prize in Germany He was elected an honorary member of the Royal Medical Society of England in 1935

Freud's influence on medicine is no doubt still in its infancy While the increasing interest in psychologic factors of somatic disorders should not be attributed wholly to Freud, no other man has contributed a greater stimulus toward study and understanding of psychologic phenomena

His contributions to medicine and those on the application of psychoanalysis to the cultural fields are collected in twelve volumes, which have been published by the International Psychoanalytic Press The position of Freud as a great leader is secure Great epochs in medicine are defined by great leaders As we associate Vesalius with anatomy, Harvey with physiology, Virchow with pathology and Pasteur with bacteriology, we shall come to consider Sigmund Freud as the founder of a new trend of thought in psychiatry—an investigator with a "profound insight into the workings of primitive mentality"

#### VITAMIN D MILK

The reports several years ago that vitamin D fed to infants or to chicks as irradiated ergosterol was not as effective as an equal number of rat units of cod liver oil have stimulated a number of investigations on the comparative merits of various antirachitic preparations Because of the practicability of administering vitamin D to infants directly in milk, this fluid fortified with the vitamin, either by the addition of concentrates, by the feeding of irradiated yeast to the cow, or by the direct irradiation of the milk, has received special attention Clinical experience with the different types of "vitamin D milk" has indicated that, in general, all these forms are effective to the extent of their unitage for both the prevention and the cure of rickets in infants Unit for unit there appears to be no great difference between the antirachitic value of the three types This opinion is borne out in one of the more recent studies on rachitic children<sup>1</sup> As judged by roentgenograms and the concentrations of calcium and of phosphorus in the blood serum, the authors concluded that there were no practical differences between the antirachitic value of milk from cows fed irradiated yeast, sometimes called "yeast milk," and that of irradiated cow's milk If a slight difference actually existed, it was thought to be in favor of the milk irradiated directly

<sup>1</sup> Gerstenberger H J Horeish A J Van Horn A L Kraus W E and Bethke R M Antirachitic Cows Milk A Comparative Study of Antirachitic Value of Irradiated Cows Milk and of Milk Produced by Cows Fed Irradiated Yeast J A M A 104 816 (March 9) 1935

A recent experimental investigation on chicks<sup>2</sup> however, seems to indicate that in this species a distinct difference exists between the antirachitic activities of "yeast milk" and of "irradiated milk." Day-old chicks were fed a rachitogenic basal diet either alone or supplemented by the various vitamin D preparations under investigation. These substances had previously been assayed on rats and therefore could be administered in comparable amounts on a rat unit basis. As an index to the antirachitic potency of the test substances, the ash content of the tibia was determined at the end of five weeks. The results demonstrated that "irradiated milk" is approximately ten times more effective than the same number of rat units of "yeast milk" and, further, that the antirachitic activity of the former compares favorably with that of cod liver oil and irradiated cholesterol. It is of some interest that the latter result confirms that of another investigator<sup>3</sup> regarding the relatively high efficiency of irradiated cholesterol as a source of vitamin D for the chick.

A distinct difference between the vitamin D content of the cream and that of the skim milk portion of "irradiated milk" and "yeast milk" was also described.<sup>2</sup> Nearly all the vitamin D potency in both cases was found in the cream, the skim milk fraction being almost inactive. Furthermore, as was found with the whole milk, the cream from the irradiated milk possessed a much greater vitamin D potency than that from yeast milk.

The foregoing investigation gives no support to the possibility that the baby chick can be used with greater accuracy than the rat for ascertaining the antirachitic effectiveness of different vitamin D containing substances in infants. However, it is of some interest in this connection that according to a recent clinical study<sup>4</sup> the feeding of "yeast milk" to premature infants as the sole source of vitamin D proved to be inadequate for achieving complete protection against rickets.

Unfortunately, the antirachitic efficacy also of irradiated and other types of fortified milk was not studied since it seems possible that under the physiologic strain imposed by prematurity both these infants might have shown an exaggerated differential response to antirachitic agents perhaps similar to that found in the chick.

From the foregoing citations and from the results obtained in other pertinent investigations it would seem that the question of the relative merits of various antirachitic agents is far from solved and that there is an urgent need for further carefully conducted and controlled studies of the problem, particularly in full-term and premature infants.

<sup>2</sup> Hanman R. W. and Steenbock, Harry. The Differential Antirachitic Activity of Vitamin D Milk. *J. Nutrition* **10**: 653 (Dec.) 1934.

<sup>3</sup> Waddell, J. The Potency of D of Cholesterol. *J. Biol. Chem.* **105**: 711 (July) 1934.

<sup>4</sup> Davidson, I. F., Merrill, Katherine K. and Chipman, S. S. Prophylaxis of Rickets in Premature Infants with Vitamin D Milk. *Am. J. Dis. Child* **51**: 1 (Jan.) 1936.

## Current Comment

### DESATURATION OF FATTY ACIDS

In 1908 Leathes proposed his now well known theory of desaturation of fatty acids by the liver. According to this view the liver not only selects preferentially the unsaturated fatty acids being absorbed from the intestine but also desaturates the fatty acids stored in the body depots prior to their oxidation. There is little doubt that the liver is a significant factor in the metabolism of fat but the recent experimental evidence has not all favored the view of its importance in desaturating fatty acids. Thus the modern conception of the nutritional indispensability of linoleic and linolenic acids—fatty acids with two and three double bonds, respectively—implies directly that neither the liver nor any other tissue can produce these compounds from more saturated ones. However arachidonic acid with four double bonds has been found in considerable quantities in liver and other tissues despite the fact that this fatty acid is not ordinarily a constituent of the diet. This fact strongly points to synthesis in the animal body. In a recent report Schoenheimer and Rittenberg<sup>1</sup> provide evidence of a somewhat different kind for the transformation of saturated fatty acids to unsaturated ones. In two experiments mice were fed a diet containing a saturated fatty acid in which deuterium replaced some of the hydrogen. After seven or twelve days the total fatty acids of the mouse were separated into a saturated fatty acid fraction and an unsaturated fraction and the deuterium determined in each. In both experiments deuterium appeared in the unsaturated fatty acid fraction. As the amount of it was several times that appearing in the body water the conclusion is drawn that the unsaturated fatty acids were derived from the saturated fatty acids. These experimental results obtained with ultramodern technique provide further evidence that the organism possesses the ability to desaturate fatty acids.

## Association News

### THE KANSAS CITY SESSION

#### Breakfast for Members of Section on Nervous and Mental Diseases

The neuropsychiatrists of Kansas City and the Missouri-Kansas Neuropsychiatric Association will give a breakfast for the members of the Section on Nervous and Mental Diseases of the American Medical Association at the Kansas City Club, on the morning of Thursday, May 14, from 7:30 until 8:45 a.m. All members of the section in attendance at the Kansas City session are invited to attend this breakfast.

#### Alumni Banquet

The University of Illinois Medical Department Alumni banquet will be held in the main dining room of the University Club in Kansas City at 6:30 p.m. Wednesday, May 13. Dr. W. E. Keith, 100 Professional Building, Kansas City, Mo., is the local chairman in charge of arrangements for the banquet.

<sup>1</sup> Schoenheimer, Rudolf and Rittenberg, D. *J. Biol. Chem.* **113**: 505 (March) 1936.

## BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session

### NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company

May 11, 3 30 p m "Nutrition and the Future of Man," by Dr James S McLester, President of the American Medical Association Fifteen minutes

May 12, 3 p m "Medicine Marching Forward" The regular dramatized program Your Health (originating in Chicago), based on papers or exhibits presented at the convention Dr W W Bauer Thirty minutes

May 13, 11 a m An interview about the Scientific Exhibit with Dr Morris Fishbein Fifteen minutes

### COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System

May 11, 1 30 p m An interview with one or more distinguished foreign visitors by Dr Morris Fishbein Subject to be announced Fifteen minutes

May 15, 2 p m A news broadcast outlining the main events of the convention Dr W W Bauer Fifteen minutes

May 15, 8 45 p m "Medicine Yesterday and Today" An interview with dramatizations (originating in Chicago) based on papers or exhibits presented at the convention Dr Paul A Teschner and the Columbia Broadcasting System commentator Thirty minutes

The hour given is central standard time eastern standard time is one hour later, mountain time one hour earlier and Pacific time two hours earlier Daylight saving time in each locality is one hour later

## RADIO BROADCASTS

The American Medical Association broadcasts over WEAf, the Red network instead of the Blue as formerly, and certain additional stations of the National Broadcasting Company at 5 p m eastern daylight time (3 o'clock central standard time, 2 o'clock mountain time 1 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met" The title of the program is "Your Health" The program is recognizable by a musical salutation through which the voice of the announcer offers the toast 'Ladies and gentlemen your health' The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community day and night for the promotion of the health of the people Each program will include a brief talk dealing with the central theme of the individual broadcast

**Red Network**—The stations on the Red network of the National Broadcasting Company are

WEAF	WCSH	WBEN	ASD
WEEI	KLW	WCAE	WHO
WTIC	WFBZ	WTAM	WOW
WJAR	WRC	WWJ	WDAF
WTAG	WGY	WMAQ	

**Pacific Network**—The stations on the Pacific network are

KCO	KFI	KOMO	KFSB
KIO	KGW	KHQ	KTAR

Network programs are broadcast locally or omitted at the discretion of the local station The lists indicate stations to which programs are available

The last program of the present series is as follows

May 12 Medicine Marching Forward W W Bauer MD

A new series is under consideration for the autumn and winter of 1936-1937 Announcement will be made in THE JOURNAL when arrangements are completed

## RAILROAD TICKETS TO THE KANSAS CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION, MAY 11-15

When you purchase your ticket to the Kansas City meeting of the American Medical Association, May 11 15, be sure to ask your railroad ticket agent for a certificate, which, when properly certified to and validated will entitle you to purchase a return ticket to your home over the same route traveled to Kansas City, at one third the fare paid to Kansas City No refund of fare will be made on account of failure to present a validated certificate when purchasing return ticket For additional details about transportation to Kansas City see The JOURNAL of the American Medical Association of April 11, 1936, page 1281

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY FORWARDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC)

### CALIFORNIA

**State Medical Meeting in Coronado**—The sixty fifth annual meeting of the California Medical Association will be held at the Hotel Del Coronado, Coronado, May 25 28, under the presidency of Dr Robert A Peers, Colfax Among many other speakers will be the following physicians

Jacob J Singer St Louis, Newer Methods in the Treatment of Pulmonary Tuberculosis  
Franklin G Ebaugh, Denver, Sleep Disturbances in Clinical Practice  
Leon Ascher, Berne, Switzerland, Synergic Reaction in Clinical Practice  
Campbell P Howard, Montreal, Calcinoses with Special Reference to Its Occurrence in Scleroderma  
Paul D Foster, Los Angeles and Alton B Abshier, New York, Smallpox Vaccine in the Treatment of Recurrent Herpes Simplex  
James E Potter and Earl G Longley, Bremerton, Wash, and Francis H Redewill, San Francisco, Hyperpyrexia is an Adjunct in the Treatment of Cerebrospinal and Kahn Fast Syphilis  
Harry H Wilson, Los Angeles, Management of Alcoholism  
Francis M Pottenger, Monrovia, The Tuberculous Cavity in Its Clinical and Public Health Aspects  
Philip H Pierson, San Francisco, Silicosis  
J Homer Woolsey, Woodland, Congenital Occlusion of the Intestinal Tract  
Francis M Tindley, Santa Barbara, The Surgical Approach to Hypertension  
John B de C M Saunders, San Francisco, Important Anatomical and Functional Features of the Distal Radio Ulnar Joint

Dr Howard, who is professor of medicine at McGill University Faculty of Medicine, Montreal, will conduct a clinico-pathologic conference Tuesday, Sunday, May 24, the cancer commission will conduct a conference on pathology at the Zoological Research Hospital, Balboa Park, San Diego and one on radiology at the Hotel Del Coronado Entertainment will include the past president's breakfast Tuesday morning, the state and county society officers' luncheon, the state golf tournament at the Coronado Country Club Tuesday afternoon and the dinner and reception to President Peers in the evening The women's auxiliary will hold its seventh annual session, May 24-28

### CONNECTICUT

**Practically Free from Bovine Tuberculosis**—Connecticut is the thirty-ninth state to be admitted to the modified accredited area of states practically free from bovine tuberculosis, the U S Department of Agriculture announces Tuberculosis eradication work among cattle in Connecticut was begun more than twenty-five years ago and has been in progress in cooperation with the federal government since 1918

### DISTRICT OF COLUMBIA

**Medical Bill in Congress**—H R 12424 has been reported to the House without amendment proposing to examine and register beauty culturists in the District of Columbia

**Health at Washington**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million for the week ended April 25 indicate that the highest mortality rate (20.3) appears for Washington and the rate for the group of cities as a whole was 13 The



mortality rate for Washington for the corresponding period last year was 198 and for the group of cities, 126. The annual rate for eighty-six cities for the seventeen weeks of 1936 was 136 as against a rate of 126 for the corresponding period of last year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

## GEORGIA

**Society News**—A symposium on obstructive lesions of the genito-urinary tract was presented before the Fulton County Medical Society, April 16, by Drs. Montague L. Boyd, Edgar G. Ballenger, Omar F. Elder, Harold P. McDonald, William L. Champion and Samuel J. Sinkov. Dr. Frank Kells Bolland, Jr., Atlanta, discussed "Postoperative Evisceration Among the Colored Race" before the society in Atlanta, April 2.

**Death Rate from Malaria Declines**—A total of 377 deaths from malaria were reported for 1935 in Georgia representing a death rate of 124 per hundred thousand of population. This compares with a rate of 11 in 1934. Dr. Thomas F. Abercrombie, Atlanta, director of the state department of public health, stated that 1935 was the first year since 1931 in which a gross decline from the previous year in the state death rate was recorded.

**University News**—A trust fund with an annual income of \$1,000 has been established by Mrs. Olivia A. Herbert to maintain the new equipment of the recently completed Milton Antony Wing of the University Hospital, University of Georgia School of Medicine, as a memorial to her husband, a son and a daughter. Mrs. Herbert donated \$18,000 for the equipment last year. Dr. Alfred P. Briggs, assistant professor of internal medicine, St. Louis University School of Medicine, addressed members of the faculty and students, March 31, on renal function.

## ILLINOIS

**District Meeting**—The spring meeting of the Iowa and Illinois Central District Medical Association was held in Rock Island, April 9. Dr. William F. Schroeder, Rock Island, read a paper on "Use of Sodium Phenobarbital as a Preanesthetic," and Dr. Thomas G. Orr, Kansas City, Mo., discussed "Important Factors in Preoperative and Postoperative Therapy, with Special Reference to Intravenous Infusions."

## CHICAGO

**Society News**—At a meeting of the Chicago Society of Allergy, April 20, Drs. Carl A. Dragstedt spoke on "Mechanism of Anaphylaxis" and Theodore L. Squier and Frederick W. Madison, Milwaukee, "Hematologic Response in Food Allergy (Eosinophilia in the Leukopenic Index)." A symposium on physical therapy as employed in ophthalmology was presented before the Chicago Ophthalmological Society, April 20, by Drs. Oscar B. Nugent, James Larkin, James T. Case and John S. Coulter. Dr. Frank J. Jirka, state health commissioner, addressed the Douglas Park Branch of the Chicago Medical Society, April 21, on activities of the state health department, while Dr. Harry J. Isaacs discussed the medical and surgical aspects of jaundice. At a meeting of the Chicago Pediatric Society, April 21, the "Evaluation of Oxygen-Carbon Dioxide Mixtures in the Treatment of Pneumonia" was discussed by David J. Cohn, Ph.D., Dr. Albert L. Tannenbaum, A. Baird Hastings, Ph.D., and Dr. William Thalhimer.

## IOWA

**Annual Renewal Fees Due Before June 1**—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license, a licensee must make a written application to the state department of health before June 1, enclosing the renewal fee of \$1. If a license expires by reason of the licensee's failure to renew it, it can be reinstated without reexamination only on the recommendations of the board of health and the payment of the overdue fees.

**Society News**—Dr. Clarence E. Van Epps, Iowa City, conducted a clinic on nervous diseases before the Washington County Medical Society in Washington, March 31. Dr. Harold Dabney, Kerr, Iowa City, discussed "X-Ray Therapy in Relation to Surgical Conditions" before the Black Hawk County Medical Society, March 17. Dr. Ewen M. MacFadden, dean of the State University of Iowa College of Medicine, Iowa City, was a guest at this meeting. Dr. Hugh H. Young, Baltimore, addressed the Linn County Medical Society in Cedar Rapids, March 8, on urology.

**Personal**—Dr. Leonard P. Ristine, superintendent of Cherokee State Hospital, Cherokee, has been appointed to a similar position at Mount Pleasant State Hospital, Mount Pleasant, succeeding Dr. M. Charles Macklin, resigned. Dr. Charles F. Obermann, head physician at the Hospital for Epileptics and School for Feebleminded, Woodward, will succeed Dr. Ristine at Cherokee. Dr. James A. Edwards, superintendent of the State Sanatorium for Tuberculosis at Oakdale, was elected president of the Iowa Tuberculosis Association, March 19. Dr. Charles F. Schilling has resigned as medical superintendent of Iowa Sanatorium and Hospital, Nevada.

## KANSAS

**Public Speakers Available**—The Shawnee County Medical Society announces that its members are now available to give medical lectures for the public. Any club or organization desiring a speaker may communicate with Dr. John L. Lattimore, chairman of the public relations committee, 618 Mills Building, Topeka. The purpose of this policy is to acquaint the public with disease, its causes, treatment and prevention. There will be no charge.

**New County Societies Organized**—The Osage County Medical Society was organized at a meeting in Lyndon, March 18. Dr. George B. Kierulff, Melvern, was chosen president, Dr. Fred G. Schenck, Burlingame, vice president and Dr. Charles W. Beasley, Lyndon, secretary. The organization of the Wabamsee County Medical Society took place in Eskridge, March 19. Officers elected are Drs. Louis M. Tomlinson, Harveyville, president, and Charles L. Youngman, Harveyville, secretary.

**Physicians Honored**—The Saline County Medical Society held a dinner meeting, March 9, in honor of Dr. Oliver D. Walker, Salina, who celebrated his fiftieth anniversary in the practice of medicine. Dr. Walker, who is 76 years of age, is a former president of the Kansas State Medical Society and the Saline County Medical Society. He is still in active practice. Dr. George M. Gray, Kansas City, was guest of honor at a banquet, recently, given by friends and associates in recognition of his eightieth birthday.

## MASSACHUSETTS

**Health Association Changes Name**—The Massachusetts Association of Boards of Health, at its recent annual meeting, changed its name to the Massachusetts Public Health Association. Dr. Paul R. Withington, Milton, was chosen president of the association at this meeting.

**Henry Jackson Lectures**—Dr. Tinsley R. Harrison, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, gave the Henry Jackson Lectures of the New England Heart Association, April 30-May 1, at the Boston Medical Library. His subjects were "The Pathogenesis of Circulatory Failure" and "The Principles of Therapy in Patients with Congestive Heart Failure."

**Advisory Council Named**—Dr. William B. Keeler, health commissioner of Boston, recently appointed the following to serve as an advisory health council:

Dr. John W. Barlow, president, Boston Health League  
Dr. Alexander S. Begg, dean, Boston University Medical School  
Samuel Prentiss, dean of science, Massachusetts Institute of Technology  
Dr. Roger I. Lee, Boston  
Rev. Richard J. Quinn, diocesan director of parochial schools  
Dr. Wilson G. Smilie, professor of public health administration, Harvard School of Public Health  
Dr. George Shattuck, assistant professor of tropical medicine, Harvard University School of Medicine  
Dr. Hyman Morrison, professor of clinical medicine, Tufts College Medical School  
Mr. Horace Morrison, vice chairman, Boston Health League  
Gertrude Peabody, vice president, Community Health Association

The first advisory health council was created in 1918 by the late Commissioner Francis X. Mahoney.

## MICHIGAN

**Regional Training Center for Public Health Personnel**—The division of hygiene and public health of the University of Michigan, Ann Arbor, in cooperation with the U. S. Public Health Service, has been designated as a regional training center for public health personnel serving Michigan, Ohio, Indiana, Illinois and Nebraska in accordance with plans made possible by the National Social Security Act. It is announced that training of personnel began April 6 and will continue until July 25. The first twelve weeks of work will be offered at the university and the last four in practical field work in one or more counties of the state in which recognized county health units are in full operation. Three fields of training will be open for study: public health administration, medical officers of

health, public health engineering and sanitation, and public health nursing. State commissioners of health of each of the five states comprising the regional area have selected "trainees" for each of the courses in public health specified. Other students are admitted if they meet the entrance educational qualifications in medicine, sanitation and nursing. In addition to the regular teaching staff of the division of hygiene and public health, the following personnel has been added to conduct the work:

Carl Buck, Dr. P.H., field director, American Public Health Association  
W. Frank Walker, Dr. P.H., director, division of health studies, Commonwealth Fund  
Ira V. Hiscock, C.P.H., professor of public health, Yale University School of Medicine, New Haven  
Dr. Eugene L. Bishop, director of health, Tennessee Valley Authority  
Dr. Joseph W. Mountain, U. S. Public Health Service  
H. E. Miller, U. S. Public Health Service  
Dr. Leslie L. Jumsden, U. S. Public Health Service  
Ann M. Holmer, (public health nursing)

### MISSOURI

**Dr. Cole to Head Department of Surgery in Chicago**—Dr. Warren H. Cole, assistant professor of clinical surgery, Washington University School of Medicine, St. Louis, has been named professor and head of the department of surgery, University of Illinois College of Medicine, Chicago, to succeed the late Dr. Carl Hedblom. The appointment is effective September 1. Dr. Cole, who is 37 years of age, graduated from Washington University School of Medicine in 1920.

**Annual Spring Clinics**—The St. Joseph Clinical Society held its annual spring clinics at the Robidoux Hotel, St. Joseph, March 23-25. Dr. William W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association, Chicago, addressed a public meeting Monday evening on "Popular Beliefs That Are Not So." Guest speakers at the clinics and some of their subjects were:

Dr. Bruer, The Physician as a Health Educator  
Dr. Augustus G. Pohlman, Omaha, The Physiology of the Changes in the Circulatory System at Birth  
Dr. Chester A. Stewart, Minneapolis, Treatment of Epilepsy in Children  
Dr. Harry L. Smith, Rochester, Minn., Syncope of Patients with Hypersensitive Carotid Reflexes  
Dr. William H. Olmsted, St. Louis, Present Day Diabetic Diets  
Dr. Roland M. Klemme, St. Louis, Diagnosis and Treatment of Intracranial Lesions  
Dr. Ferdinand C. Helwig, Kansas City, Kan., Radiosensitivity and Radioresistance in the Therapy of Malignant Disease  
Dr. Meyer Wiener, St. Louis, Eye Findings and Their Interpretation in Intracranial Lesions  
Dr. Ray M. Balyeat, Oklahoma City, The Therapeutic Value of Intratracheal Iodized Oil as an Adjunct in the Treatment of Intractable Asthma

The banquet Tuesday evening was addressed by Dr. Stewart and Dr. Roger L. J. Kennedy, Rochester, Minn., on "Prevention and Treatment of Tuberculosis" and "Some Diseases in Children Accompanied by Changes in the Skeleton and Extraskeletal Tissues," respectively. The banquet session Wednesday evening was a joint meeting with the Buchanan County Medical Society. Speakers were Drs. Olmsted on "Physiology of Bulky Foods in the Treatment of Constipation," Dr. Klemme, "Diagnosis and Accurate Differential Section in the Treatment of Trigeminal Neuralgia," and Dr. Duff S. Allen, St. Louis, "Some Newer Aspects in Surgery of the Thyroid."

### NEW HAMPSHIRE

**State Medical Meeting in Manchester**—The one hundred and forty-fifth annual meeting of the New Hampshire Medical Society will be held at the Hotel Carpenter Manchester, May 26-27, under the presidency of Dr. Clifton S. Abbott, Laconia. Physicians presenting the program will include:

Joseph Dunbar Shields, Jr., Concord, The Irritable Colon: Diagnosis and Treatment by the General Practitioner  
John D. Spring, Nashua, Arterial Pneumothorax in the Treatment of Tuberculosis  
Henry A. Christian, Boston, Diuretics and What They Do  
M. Dawson, Tyngsboro, Problems in the Diagnosis and Treatment of Bronchiectasis  
Jesse O. Arnold, Philadelphia, More Rational Methods in the Prevention and Control of Eclampsia  
Morris Fishbein, Chicago, Public Relations of the Medical Profession  
Oswald S. Lowis, New York, Recent Advances in Urologic Surgery Including Renal and Prostatic Surgery  
Experiences with a New Operation for Impotence  
William D. Stroud, Philadelphia, Coronary Disease Including Angina Pectoris

A symposium on pediatrics will be conducted Tuesday afternoon by Drs. Richard M. Smith, William E. Ladd and Richard Cannon, all of Boston. On the same day Dr. Ellen A. Wallace, Manchester, will be presented with the fifty-year membership gold medal. The annual banquet Wednesday evening will be addressed by Governor H. Styles Bridges, Dr. Abbott and Dr. Fishbein.

### NEW JERSEY

**Society News**—Drs. Burgess L. Gordon and Paul A. Bishop, Philadelphia, addressed the Camden County Medical Society, Camden, April 7, on "Tuberculosis in Childhood and the Teen Age" and "X-Ray Diagnosis" respectively. Dr. George F. Pfahler, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, April 10, on "Treatment of Carcinoma of the Bladder." The Society of Surgeons of New Jersey will hold its spring clinical meeting at Orange, May 27, with clinics at the Orange Memorial Hospital, golf in the afternoon and dinner at the Essex County Country Club, West Orange. Benjamin Werne, editor of *Current Legal Thought*, addressed the Bergen County Medical Society, Hackensack, April 14, on "The Role of Medical Science in Preventive Justice." Dr. Harry H. Satchwell, Irvington, addressed a joint meeting of the county societies of the first and second districts of the Medical Society of New Jersey at Newark, April 9, on "Medical Economic Security."

### NEW YORK

**Woman's Auxiliary Organized**—Wives of members of county societies met at the Waldorf-Astoria, New York, March 11 to organize the Woman's Auxiliary to the Medical Society of the State of New York. Mrs. John L. Bauer, Brooklyn, was elected president, Mrs. Francis R. Irving, Syracuse, president elect, Mrs. Edward A. Flemming, Brooklyn, and Mrs. Frederic E. Elliott, Brooklyn, vice presidents. Mrs. Henry L. Hirsch, Rochelle Centre, secretary, and Mrs. Daniel J. Swan, Flushing, treasurer. Dr. Frederic E. Sondern, New York, president of the state society, addressed the organization meeting.

**Society News**—Dr. William Snow, New York, addressed a joint meeting of the Onondaga Medical Society and the Syracuse Eye, Ear, Nose and Throat Club, March 3, on "Topical Treatment of the Upper Respiratory Tract" and "Mechanical Factors in Acute Pulmonary Disease of Infants." Dr. Russell L. Cecil, New York, addressed the Warren County Medical Society, Glens Falls, March 6, on "Newer Methods of Diagnosis and Treatment of Pneumonia." The New York State Association of Public Health Laboratories will hold its twenty-first annual meeting at Vassar College, Poughkeepsie, May 25. Dr. Warfield T. Longcope, Baltimore, addressed the Syracuse Academy of Medicine, March 17, on "Pyelonephrosis."

### New York City

**Fellowship for Study of Emotions**—The Rockefeller Foundation has provided a research fellowship at the British Institute of Medical Psychology, London, beginning March 1. It is for research into the relation between the emotional and organic factors in certain physical disorders, *Science Reports*.

**Lord Horder Gives Janeway Lecture**—Lord Thomas Jeeves Horder, senior physician to St. Bartholomew's Hospital, London, will deliver the Edward Gamaliel Janeway Lecture, May 15, on "Direct Action in Medicine." The lecture will be given in the Blumenthal Auditorium, under the auspices of Mount Sinai Hospital of New York.

**Medical Care for Relief Clients**—More than 81,500 home relief families required medical care in the three months between Dec. 15, 1935, and March 15, the Emergency Relief Bureau has reported. The number of cases was highest in February, when all records were broken with 33,400. Less than 10,000 needed care in the last half of December, 24,000 in January and 14,000 in the first half of March. During the three months there were about 56,000 assignments of physicians registered with the bureau and 4,200 nurses' visits, 152,000 prescriptions and 4,000 surgical and optical appliances were issued.

**New Agency to Deal with Delinquent Children**—Mayor La Guardia has recently set up in the Children's Court of Manhattan a new agency known as the bureau of adjustments to which delinquent children will be referred for study with a view to adjusting their problems without recourse to the courts. The new bureau is the first step in a program to be administered under a newly created Inter-Departmental Coordinating Board for Child Welfare, made up of representatives of eight branches of the city government, headed by Justice John Warren Hill of the Court of Domestic Relations. It will be the task of the board to coordinate the activities of all city departments having to do with child problems. Among the members of the board are Drs. Karl M. Bowman, head of the psychiatric division of the hospital department, and George T. Palmer, Dr. P.H. assistant health commissioner. A committee headed by C. C. Burlingham will coordinate the work of the new board with private agencies in the same field. It is planned to open bureaus of adjustment in all five boroughs.

## NORTH CAROLINA

**Society News**—Dr William D Stroud, Philadelphia, addressed the Guilford County Medical Society, April 2, on 'Coronary Disease'—The Tri-State Hospital Conference of North and South Carolina and Virginia was held in Richmond, April 16-17—Drs Robert P Noble and Robert H Hackler Jr Raleigh, addressed the Wake County Medical Society March 12, on 'X-Rays in Treatment of Skin Disease' and 'Physical Characteristics of X-Rays and Their Clinical Application' respectively—Dr Emil Novak Baltimore addressed the society, April 8, on 'The Endocrines in Gynecologic Practice'—At the semiannual meeting of the Eighth District Medical Association in Mount Airy, April 8 speakers included Drs Charles O Delaney Winston-Salem, on 'Treatment of Acquired Renal Dystrophia' Carl V Tyner, Leaksville, 'Leukorrhea,' and Samuel F Ravenel Greensboro 'Advances in Prevention and Treatment of Contagious Diseases'—Dr William D James Hamlet discussed cancer prevention at a meeting of the Rutherford County Medical Society, Forest City, April 16

## OHIO

**Hospital News**—Typing service for the pneumonias and demonstration of the method of typing by the Neufeld technic have been made available to physicians of Hamilton County at the Cincinnati General Hospital, through the generosity of an anonymous donor, it is announced For indigent patients specific therapeutic serum will be donated—Cameron Hospital a \$40,000 structure with a capacity of twenty-five beds was opened April 5 at Bryan

**Conference of County Officers**—The council of the Ohio State Medical Association has invited officers of all county medical societies with chairmen of their medical economics public relations and legislative committees to meet with officers of the state association for a conference in Columbus, April 26 Subjects to be discussed include medical care of the indigent legislative problems and developments workmen's compensation the social security program in Ohio promoting county medical society attendance and programs

**District Meeting**—The second councilor district of the Ohio State Medical Association held its annual meeting in Springfield, April 15 Guest speakers at an afternoon session were Drs Albert M Snell, Rochester, Minn, who discussed 'Recent Studies in the Liver and Biliary Tract and 'Clinical Observations,' and George M Curtis, Columbus Iodine as Related to Thyroid Disease' and Enlargements of the Spleen' Dr Morris Fishbein, Chicago, editor of THE JOURNAL gave the address at the annual banquet at the Shawnee Hotel The morning was devoted to clinics at the Springfield City Hospital

## PENNSYLVANIA

**New Appointments to Advisory Health Board**—The following appointments to the state advisory health board were announced by Governor Earle April 10 Dr Moses Behrend Philadelphia succeeding Dr Ross V Patterson, Philadelphia Dr Richard J Behan Pittsburgh, succeeding Dr William G Turnbull, Philadelphia Dr Erwin S Briggs Warren succeeding Dr John M Beck Alexandria Dr Walter S Brenholtz Williamsport, succeeding Dr Saylor J McGhee, Lock Haven, and John A Meehan DDS, New Castle

## Philadelphia

**Alumni Luncheon**—The Medical Alumni of the University of Pennsylvania will join in a luncheon at the Hotel Pennsylvania, Saturday, May 16 Dr Charles W Burr Philadelphia is president

**Packard Lecture**—Dr Clifford G Grulee clinical professor of pediatrics Rush Medical College Chicago delivered the annual Frederick A Packard Memorial Lecture of the Philadelphia Pediatric Society April 14 Dr Grulee's subject was Intracranial Hemorrhage of the New-Born

**Dr Brumm Receives Strittmatter Award**—Dr Seth A Brumm received the thirteenth Dr I P Strittmatter Award at the annual dinner and meeting of the Philadelphia County Medical Society, April 22, in recognition of his accomplishments in the activities of organized medicine Dr Brumm who is 54 years of age graduated from the University of Pennsylvania School of Medicine in 1906 He was president of the county medical society for the year that began July 1 1934 He was appointed chief of the division of communicable diseases of the Philadelphia Department of Health in 1932 and

in the same year elected president of the Philadelphia Association of Tuberculosis Clinics Dr Frank H Laher, Boston delivered the Dr John Chalmers DaCosta Oration on 'Management of Biliary Tract Disease'

## TENNESSEE

**Society News**—Dr Andrew A Eggston, New York, addressed the Nashville Academy of Medicine April 21 on 'Clinical Pathology in Relation to Diagnosis' Richard E Scammon Ph D Minneapolis addressed the academy, April 7 on 'The Guild of Medicine'—A symposium on heart diseases was presented before the Hamilton County Medical Society, Chattanooga, April 30, by Drs Philip H Levinson Harold J Starr Howard P Hewitt, Ashby M Patterson and Frederick E Marsh—Dr Homer Stirl Rule Jacksboro addressed the March meeting of the Campbell County Medical Society, LaFollette on history, incidence and diagnosis of syphilis—Dr Elbert G Wood Knoxville addressed the Knox County Medical Society, April 7, on 'Toxemia of Late Pregnancy'

## TEXAS

**State Medical Meeting in Houston**—The seventieth annual session of the State Medical Association of Texas will be held in Houston May 26-28, under the presidency of Dr John H Burleson, San Antonio with headquarters at the Rice Hotel The program includes the following guest speakers

Eugene T Leddy Rochester Minn Roentgen Ray Treatment of Severe Asthma  
Edward William Alton Ochsner New Orleans The Physiologic Treatment of Peptic Ulcer  
Marcus Pinson Neal Columbia Mo The Reactive Blood Cells in Acute Infections  
Edward H Ryneanson Rochester Minn Syndromes Resulting from the Hypofunction and Hyperfunction of the Endocrine Glands  
Charles J Bloom New Orleans Thyrotoxicosis in Children  
Gershom J Thompson Rochester Minn Urinary Lithiasis  
Lawrence M Randall Rochester Relief of Pain During Labor  
Oscar B Nugent Chicago Interesting Facts About the Eyes  
Winfield K Sharp Jr New Orleans The Social Security Act As It Relates to Public Health in Texas

Memorial services will be held Wednesday Related organizations meeting at this time include the Texas Railway Surgeons Association, Texas Neurological Society, Texas State Heart Association, the Conference of County and City Health Officers and the Texas Dermatological Society

## VIRGINIA

**Faculty Changes at Medical College**—The Medical College of Virginia Richmond, recently made the following promotions for the session of 1936-1937 Rolland J Main, Ph D to be associate professor of physiology Drs William D Suggs, assistant professor of obstetrics, and Lawther J Whitehead assistant professor of radiology Dr William L Peple, resigned, was made emeritus professor of clinical surgery

**Personal**—Dr Thomas M Parkins, coroner of Staunton has been appointed health officer to succeed Dr James Fairfax Fulton—Maximilian Ehrenstein Ph D research fellow in physiology, University of Virginia Department of Medicine has been awarded one of the prizes of the van Hoff Fund by the Royal Academy of Sciences at Amsterdam, in recognition of his work on the alkaloids of tobacco and the catalytic dehydrogenation of cyclic bases

## WASHINGTON

**Increase in the Death Rate**—The mortality rate for Washington in 1935 was 112 per thousand of population compared with 109 in 1934 the state health department reports It is reported that of 18,217 deaths 4751 were caused by diseases of the circulatory system 2233 by cancer and other tumors 1518 by cerebral hemorrhage and 1524 by diseases of the genito-urinary system Deaths from automobile accidents declined by forty from 1934 the number for 1935 being 570 The infant mortality rate increased from 432 in 1934 to 451 for last year Deaths of mothers in childbirth numbered 117 ten higher than in 1934

**Society News**—Drs Charles P Wilson and Arthur J McLean, Portland addressed the Cowlitz County Medical Society, Longview in March on Diagnosis and Treatment of Rheumatism and Spinal Injuries respectively—Dr George W Swift Seattle addressed the Spokane County Medical Society, Spokane in March on Spinal Drainage in Treatment of Head Injuries—Drs George R Marshall Seattle and Kenneth K Sherwood Kirkland addressed the Yakima County Medical Society in March on 'Proctologic Examinations and

'Chronic Arthritis' respectively—Dr Jackson K Holloway, Seattle discussed inguinal hernia with report of a case of hydrocele of the canal of Nuck before the King County Medical Society May 4, and Dr Kenneth K Sherwood Kirkland 'Natural Course of Post-Traumatic and Gonorrheal Arthritis' The society was addressed, April 20, by Drs Homer D Dudley and Hilton W Ro e, Seattle, on 'Sacculated Varix of the Femoral Vein' and 'Cool Water Treatment of Burns' respectively

### WISCONSIN

**Personal**—Dr Ethan B Pfefferkorn, Oshkosh, has been appointed assistant state health officer to succeed Dr Guy W Henka, Madison—Dr Adolf Gundersen La Crosse, and Mr J George Crownhart, Madison, secretary, State Medical Society of Wisconsin, are members of a committee recently appointed by Governor La Follette to study administration of relief, federal aid and state institutions

**Digest of Laws on Care of Indigent Sick**—The State Medical Society of Wisconsin, through its department of legal medicine, has recently issued the sixth edition of a "Summary of Wisconsin Poor Relief Laws Affecting Care of Indigent Sick" The pamphlet contains excerpts from the statutes and statements of principles drawn from court decisions attorney generals' decisions and other available authorities Thirty-two questions are dealt with, including authorization of relief, definitions of the indigent, emergency relief, the physician's problem with persons obviously indigent but not able to get relief, obstetric cases malpractice hospitalization of various kinds, care of the handicapped and pensions It closes with a resolution adopted by the state board of health February 27, urging counties cities, villages and towns to maintain an adequate medical relief program to take the place of that financed until recently by federal funds Three points were emphasized by the board right of the sick to have the physician of their choice, continuation of the manner of recompense used under the federal program and a policy of reasonable hospitalization when found essential to the welfare of the patient by the family physician

### GENERAL

**Change in Date of Library Meeting**—The annual meeting of the Medical Library Association will be held in St Paul, June 22-24 instead of May 25-27 in Rochester as previously announced

**Medical Bill in Congress**—*Bill Introduced* H R 12492 introduced by Representative Couden, California, proposes to authorize an appropriation of such sum as may be necessary not to exceed \$2,000,000, to construct a marine hospital at Los Angeles Harbor Los Angeles for the accommodation of approximately 500 bed patients

**Winners in City Health Contest**—Detroit Oakland, Syracuse, Schenectady, Brookline and Hibbing are the winning cities in the seventh annual interchamber health conservation contest conducted among cities by the Chamber of Commerce of the United States in cooperation with the American Public Health Association The city contest supported by a group of insurance companies is to determine which municipalities of various populations are carrying on the most effective community public health programs, in an effort to prevent premature deaths and economic losses due to unnecessary illness

**Orthopedic Meeting**—The fiftieth annual meeting of the American Orthopedic Association will be held in Milwaukee May 18-21, under the presidency of Dr Frederick J Gauslen Headquarters will be at the Hotel Schroeder Speakers will include

Dr Richard B Dillehunt Portland Ore Reconstruction of Injured Elbows in Children  
Dr William C Turner Montreal Quebec Fractures and Fracture Dislocation of the Cervical Spine  
Drs Marius N Smith Petersen and Paul L Norton Boston Treatment of Bursitis  
Dr Henry W Neveding Rochester Minn Treatment of Giant Cell Bone Tumors  
Dr Elen J Carey Milwaukee The Wave Mechanics of Muscle Motion  
Dr Zabdil B Adams Boston Occurrence of Abscesses from Hips That Are Firmly Ankylosed

**Research Conference**—The departments of biology chemistry and physics of Johns Hopkins University will hold a research conference at Gibson Island near Baltimore, June 22-July 24 The tentative program gives the following topics for discussion nuclear physics photochemistry tissue respiration, chemistry of olefins from petroleum and synthetic resins The plan is flexible varying from day to day according to the nature of the topic under discussion and the wishes of

those participating A somewhat formal lecture will open the day's program, outlining some field of research and directing attention to its unsolved problem, and will be followed by a discussion in which each one present takes part making what contribution he can to the solution of the problems presented The conferences are intended to combine mental stimulation pleasant personal contacts and healthful recreation Further information may be obtained from Neil E Gordon, department of chemistry, Johns Hopkins University, Baltimore

**Association for Study of Internal Secretions**—The twentieth annual meeting of the Association for the Study of Internal Secretions will be held at the Hotel Baltimore, Kansas City, Mo, May 11-12 Speakers will include the following

Roland K Meyer Ph D and Dr Elmer I Sevringhaus Madison Wis Gonadotropic Inhibitory Substances in Blood of Women and Monkeys After Anterior Pituitary Therapy  
Edward A Doisy Ph D St Louis Isolation of One of the Active Principles of the Ovary  
Dr Hector Mortimer Montreal Hormone Relationship Between the Female Organs of Sex and the Nasal Mucous Membrane  
Dr Hans Lissner San Francisco Two and One Half Years Observation of a Patient with Cushing's Disease Following Removal of a Pars Intermedia Adenoma  
Dr James B Collip Montreal, Further Studies in Anterior Pituitary Physiology

At the annual dinner, Monday evening, Dr Francis M Pottinger, Monrovia, Calif, will deliver the presidential address and Dr Roy G Hoskins, Boston, will speak on "Broader Aspects of Endocrinology"

**Eastern Physical Therapy Meeting**—The spring session of the eastern section of the American Congress of Physical Therapy will be held at the Philadelphia County Medical Building Philadelphia, May 27-28, under the presidency of Dr William H Schmidt The following physicians will present papers

John de P Currence New York Physical Therapy in the Treatment of Arthritis  
Jerome Weiss Brooklyn Physical Therapy in Orthopedic Conditions  
Midge C L McGuinness New York Danger of Over-treatment in Physical Therapy  
William Bierman New York president elect of the congress Temperature of the Surface of the Skin  
Gervase J P Barger Washington D C Fever Therapy in Office Practice  
Norman E Titus New York Treatment of Erysipelas with Ultra violet Energy

A joint meeting with the Philadelphia County Medical Society, Wednesday evening, will be addressed by Drs Eugene M Landis and Lewis H Hitzrog, Philadelphia, on 'Evaluation of Suction Pressure in Peripheral Vascular Disease' and Dr Disraeli W Kobak, Chicago, "Influence of Short Wave Radiation on Constituents of the Blood" All day Thursday will be devoted to clinics

**Symposium on Atmospheric Environment**—The Harvard School of Public Health, Boston, will conduct a symposium on the atmospheric environment and its effect on man, August 24-29 One day will be devoted to the pneumoconoses with the following speakers

Mr Philip Drinker associate professor of industrial hygiene Harvard School of Public Health Etiology  
Dr William Irving Clark assistant professor of the practice of industrial medicine Clinical Aspects Diagnoses Prevention  
Mr Theodore F Hatch instructor in industrial sanitation Harvard Schools of Engineering and of Public Health Control  
Mr J J Bloomfield sanitary engineer, U S Public Health Service Protective Equipment

Subjects to be discussed will include physical fitness for industrial and office jobs, fatigue, occurrence and significance of gaseous impurities nontoxic odors in ventilation, and air condition in normal life Speakers will include the following members of the Harvard faculty Dr Arlie V Bock, Oliver professor of hygiene, David B Dill, Ph D assistant professor of biologic chemistry Dr Wilson G Smillie, professor of public health administration Mr William F Wells instructor in sanitary science Dr Cecil K Drinker professor of physiology and dean Lawrence T Fairhall, Ph D assistant professor of physiology, Mr Constantin P Yaglou Mr Louis A Shaw assistant professor of physiology Additional speakers will be Mr William P Yant, supervising chemist health laboratory section and supervising engineer, Pittsburgh Experiment Station U S Bureau of Mines, Mr Ole Singstad chief consulting engineer on tunnels, Port of New York Authority, and Dr Wolfgang F von Oettingen director Haskell Laboratory of Industrial Toxicology Wilmington Del The symposium will be concluded with a demonstration in the school of public health and visits to the industrial clinic Norton Company Worcester, Mass the Fletcher Granite Company, West Chelmsford Mass and the Fatigue Laboratory of Harvard Business School

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 28, 1936

#### John Scott Haldane

Prof John Scott Haldane, FRS, physiologist and philosopher, has died at his home in Oxford at the age of 75. Born at Edinburgh, he was educated at the university and also studied at Jena. He graduated in medicine in 1884 and became a demonstrator at the University of Dundee, where in collaboration with Professor Carnelly he made an extensive investigation of the inorganic impurities of the air of dwellings, schools and sewers. This was published in 1887, only three years after he was qualified, showing his early interest in the physiology of respiration, on which he became the greatest authority in the world, making discoveries which revolutionized our knowledge. Soon afterward he became demonstrator in physiologic chemistry at Oxford to his uncle Sir John Burdon Sanderson, the physiologist. He remained at Oxford for the rest of his life and carried out there researches of fundamental importance in physiology and also of great practical use. He investigated impurities of the air in mines and discovered the action of carbon monoxide, the poisonous constituent of after-damp. He introduced simple tests by which small though dangerous quantities of carbon monoxide could be detected, using small animals, such as birds and mice, which are affected more quickly than man. In 1896 he investigated for the government the cause of death in three colliery explosions. His report, which was translated into several languages, showed the means for combating in mines the dangers arising from explosions and fires.

Between 1892 and 1900 he introduced new methods for investigating respiratory functions which are widely used today—methods for determining the respiratory exchange, the amount of hemoglobin in the blood, the volume of the blood and the analysis of air. In 1905 he published (in association with Dr Priestley) his most important discovery, that respiration is regulated by the tension of carbon dioxide in the arterial blood in the respiratory center, to which it is exquisitely sensitive. He thus gave the first insight into the extraordinary delicacy of the quantitative coordination of the activities of different parts of the body by chemical means. A few years later it was shown that carbon dioxide acted by diminishing the alkalinity of the blood. In 1905 he demonstrated the importance of wet bulb temperature in limiting the power to withstand a high temperature. In 1911 he led an expedition to Pike's Peak, Colorado, to study the effects of low barometric pressure and acclimatization to high altitudes. For the admiralty he investigated the problem of deep diving and showed how the risks of caisson disease could be abolished. In the war he was sent to the front as soon as poison gas was used by the Germans. His advice led to the adoption of the box type of respirator—the only adequate one.

#### HALDANE'S PHILOSOPHY

So far Haldane has been described as a great physiologist, but he had another side—the philosophical—which distinguishes him from all other physiologists. His philosophical bent was due to his Scotch blood. His brother Lord Haldane, lawyer and statesman, was also well known as a philosopher. Haldane's philosophy was not a diversion from his physiology but was intimately connected with it and indeed inspired his researches. Ever since he was a young man he combated the mechanistic theory of life, which is current among biologists and is widely spread by popular writers. He insisted that while a physicochemical interpretation of life had endless prac-

tical uses it was only a partial one, derived from abstracting certain aspects and neglecting the others. It ignored coordination which was the dominant feature of life. The organism must be studied as a whole. All his work showed the amazing delicacy with which the different functions of the body are correlated in normal life. Biology he regarded as an independent science with different axioms and different methods of interpretation from those of chemistry and physics. He quoted the physicist Planck. "The conception of wholeness must be introduced into physics as into biology." Thus mathematical physics could be regarded as a backward branch of biology, in contrast to the view of some scientists that biology is only a complicated and therefore backward branch of mathematical physics. He pointed out the difficulty which confronted the mechanistic conception of life—that of giving any account of the maintained coordination which is so characteristic. "We can form no coherent mechanistic conception of how it is that the intensely labile living structure tends to return always to normality, how the breaking down process is so coordinated that the building up process accompanies it. Maintenance of normality is a fact present in all physiological activity and cannot be analyzed into separable physicochemical processes."

He held that the confusion caused by failure to distinguish biology from physical science was repeated when there was failure to distinguish psychology from biology. In conscious behavior there was something different from mere life, in which the unity extended only over spatially related phenomena. In conscious behavior the unity extended also over temporal relations, the past and the future were unified with the present by the interest which extended over them. Biology could not deal with personality or values, the science that dealt with them was psychology, which dealt with conscious experience. All our knowledge of the universe implied perception. In the natural sciences we did not directly consider this, but in psychology we had to. We could not jump out of our skin of perception to a world beyond it. An analysis of what is implied in perception would embrace all knowledge and so he reached the idealistic doctrine of Berkeley. All his life he strenuously combated materialism as an impossible philosophy. For him the universe was a universe of personality and the manifestation of God. But he rejected the usual religious view that a spiritual universe exists side by side with a physical one. He was thus a deeply religious man, who could not accept any of the religious creeds. Yet, because of his strong antagonism to materialism he was in demand as a lecturer by religious bodies. One of his last books, "Materialism" consists of a series of essays, some of which were delivered as lectures. It is noteworthy that one of these was delivered at a church and another at a synagogue. One might say of other physiologists that they were either materialists or never troubled about the question of materialism. But to Haldane materialism was an absurdity and the spiritual nature of the universe a fundamental doctrine, which he never was tired of teaching. In the last twenty years Haldane wrote and lectured much more on philosophy than on physiology, but his biologic approach to philosophy, as well as the position he took up distinguished him from other philosophers. This work culminated in a small book 'The Philosophy of a Biologist,' published in 1935. Recent British philosophy can be described as 'idealism' in contrast to 'realism' which regards physical interpretation as a final interpretation of external reality. In this sense and in this sense only Haldane's philosophy was idealistic. But in a deeper sense it was wholly realistic as he regarded the universe as depicted in the sciences not as a mere appearance but as the real universe imperfectly depicted. He summed up his philosophy thus: 'The real universe is a universe of personality and the manifestation of God its scientific aspects being only partial interpretations of it the imperfect nature of which is revealed by philosophic criticism.'



### The Society for the Protection of Science and Learning

The Academic Assistance Council was formed in 1933 to assist scholars and scientists who on grounds of religion, race or opinion were unable to work in their own country. After doing excellent work it has decided to establish as its permanent successor the Society for the Protection of Science and Learning. It is proposed to build up an academic assistance fund for the purpose of awarding research scholarships in the universities of Great Britain and other countries. The fund will be administered under the auspices of the archbishop of Canterbury, the president of the Royal Society and the president of the British Academy, Lord Rutherford and Lord Horder. In an appeal for funds Lord Rutherford, who was president of the Academic Assistance Council, states that its services have been needed chiefly for 1,300 university teachers displaced in Germany, but it has also assisted refugee scholars from Russia, Portugal and other countries. In cooperation with other organizations the Council has assisted in permanently establishing 363 of the 700 displaced scholars who left Germany. A further 324 are still being temporarily maintained in universities and learned institutions while seeking more permanent positions. The council had hoped that its work might be required for only a temporary period but it is now convinced of the need for a permanent body to assist scholars the victims of political and religious persecution. The devastation of the German universities still continues. Not only teachers of Jewish descent but many others regarded as "politically unreliable" are affected. The appeal is being made with the full cooperation of the organizers of the national Christian appeal about to be made for destitute non-Jewish refugees from Germany, since the society will assist refugees irrespective of their religious affiliations. Support is therefore asked from both the Christian and the Jewish world, and in particular from the university world.

### Voluntary Prenuptial Examination

Certificates of health before marriage have been advocated and every gradation exists from compulsory measures, such as exist in Germany and Turkey, and a purely voluntary measure, which is now suggested by the Eugenics Society. A committee of this society, mainly well known physicians, has prepared a schedule for the use of the physician in the examination. Two purposes might be served by such a schedule. The first which is mainly in view in Germany, is to prevent the birth of defective children. The second is to promote the happiness of marriage by the early detection and treatment of such physical or psychologic abnormalities as might militate against the success of the marriage. The Eugenics Society states that its schedule is the only one in existence which serves both purposes. It includes questions not only on medical history but on psychologic and sexual problems which often present themselves to those about to marry. Many of these difficulties can be reduced or even removed by a frank talk with a physician.

The society advises that a person who wishes to be examined before marriage should approach his family physician. The society sends its schedule only to physicians who ask for it. If a physician desires an opinion on a problem of heredity arising from a doubtful family history, the society will help him through a board of specialists appointed for the purpose.

The schedule consists of three parts. Part I is devoted to family history and goes back as far as the grandparents. It includes questions as to cases of nervousness, nervous breakdown, mental backwardness, insanity, fainting spells, convulsions, suicide, alcohol and drug addiction, tuberculosis, diabetes, asthma, blindness or deafness in early life or any disease thought to be inherited. Part II is devoted to previous medical history and includes the usual questions of life insurance

schedules. But there is a section on possible sexual problems. The applicant is asked simply to answer yes or no to the questions "Do you understand fully the physical differences between the sexes, the nature of the sex act and the use of birth control? Is the subject of sex at all repugnant to you? Are you aware of any abnormal tendencies, fears or desires in your sex nature?" Women are asked if they understand about pregnancy or childbearing and whether they have any fear about this. Any difficulties about sex matters should be discussed with the physician. Part III is devoted to physical examination and is to be retained by the physician and not shown to the applicant. It consists of the usual questions for life insurance but includes abnormalities of the sex organs, sexual deviation and the Wassermann reaction.

Finally the following advice is given to the examining physician. The schedule is only for his use. If he has any difficulty he can refer it to a consultant. The society can help him only as regards a genetic problem. No opinion as to the success of a prospective marriage is infallible and this should be emphasized to the applicant. The marriage of first cousins is to be discouraged if there are in the common ancestry any defects or disease not due to environment. But with a good ancestry a marriage between cousins is not contraindicated. Neurotic persons are often preoccupied with sexual difficulties and frank discussion with the physician may be beneficial. Difficulties with regard to masturbation usually disappear after marriage. A homosexual phase is common in the adolescence of both sexes, but the predominance of homosexual impulses in the adult is a serious matter.

### PARIS

(From Our Regular Correspondent)

April 10, 1936

### Is Silicosis an Occupational Disease?

The pneumoconiosis problem is of great importance at present not only to departments of public health but also to those interested in hygiene. In spite of intensive study during recent years there is much to be learned regarding which forms of mineral dust are harmful, the clinical manifestations, and the relation of the disease to pulmonary tuberculosis.

At the February 18 meeting of the Académie de médecine the results of a thorough study of the question as it affects coal miners in Holland were presented by Vossemar of Heerlen and Doubrow of Paris. The study was based on roentgenograms of 600 men who had been employed for more than ten years as coal miners. Sixty, or 10 per cent, had been engaged in this work for more than twenty years. This study led to the conclusion that no clinical or roentgenographic evidence of pulmonary sclerosis can be obtained in normal individuals employed over a prolonged period in an atmosphere charged with dust containing silicates. There is no relation between the period at which the abnormal roentgenographic signs appear and the length of time the individual has been exposed to silicosis. Roentgenographic shadows similar in every respect are found in individuals suffering from pulmonary tuberculosis who have worked in silicate dust. It is probable that bacterial infection can cause chronic pneumopathies in those working in a dust-laden atmosphere among such pneumopathies, tuberculosis is undoubtedly the most important and the most frequent. Dust in industrial occupations, from the standpoint of hygiene in general, constitutes a danger, even if the dust has no specific pathogenic action that ought to be combated by appropriate technical measures. There would, however, be only illusory unless associated with a rational antituberculosis campaign.

In the discussion, Rist stated that the view that silicosis is a clinical entity, i. e., a primary autonomous disease has been generally abandoned. A silicosis will not affect a lung that is



not already diseased, the pathologic condition in the majority of cases being tuberculosis. Some miners can go for as long as twenty five years in a dust-laden atmosphere without developing any lung complications. On the other hand, one finds individuals who have never worked in a mine but who present roentgenographic signs that have been too hastily interpreted as being characteristic of silicosis and furthermore not to be distinguished from images seen in pulmonary tuberculosis. South African observers have found that those who have a supposed silicosis always die of tuberculosis. There is such a close relation between silicosis and tuberculosis that it is impossible at present to state in a given case whether there is a so called pure silicosis or a silicosis associated with a pulmonary tuberculosis. Hence the difficulty existing in France and foreign countries in placing in the list of occupational diseases a syndrome so ill defined with regard to its character, cause and diagnosis as is silicosis.

Crouzon stated that this subject had been discussed at several meetings of the Medicolegal Society and that many different opinions were expressed. Certain authors think that silicosis per se can assume a role in the etiology of certain bronchopulmonary disorders and hence ought to be considered as an occupational disease. The result has been that silicosis is so regarded in France, a step which Rist believes was taken too hastily. Another group believes that the pathogenic role of silicosis is too little known at present. Pollet maintains that from the standpoint of indemnity and legal responsibility, if silicosis gives rise to a bronchopulmonary infection, silicosis must be regarded as an occupational disease. The Medicolegal Society therefore voted in favor of a more extensive study of the subject as to which victims of silicosis are entitled to be regarded as having an occupational disease. As a result of this discussion the Academy of Medicine named a special commission to investigate the question whether silicosis should be regarded as an occupational disease.

#### Pneumectomy for Cancer of the Lung

Pneumectomy for cancer of the lung is being actively discussed in France. It has been chosen as the subject of a report to be made at the next annual surgical congress, to be held in October. At the February 7 meeting of the Société médicale des hôpitaux of Paris a case was reported by Ameuille and his associates in which an unsuccessful attempt was made by Menegaux to perform a pneumectomy (right lower lobe) for cancer. The obstacles that have prevented more rapid development in this field of cancer surgery are difficult and too late diagnoses and inability to estimate the extent of adhesions and lymph node extension. Bronchoscopy is of some help in the diagnosis of a primary bronchial cancer but of no aid in the diagnosis of a primary invasion of the lung itself. In many cases only an exploratory thoracotomy will enable a diagnosis to be made. Such an operation can be followed by a pneumectomy and high voltage roentgen or radium therapy. In every case one should have as complete information as possible as to invasion of the cervical and axillary lymph nodes. In addition, an x-ray examination of the mediastinum should be made in conjunction with the use of opaque mediums in the trachea and esophagus in order to exclude invasion of these structures. An artificial pneumothorax followed immediately by fluoroscopy of the chest yields much information as to the presence and extent of adhesions, especially if any pleuritic exudate has been aspirated as a preparatory measure. Before attempting a pneumectomy, one must explore the condition of the other lobe or lobes of the lung, of the mediastinum, of the diaphragm and of the chest wall.

In the discussion, Justin-Besançon stated that progress in this field of surgery could be achieved only if an early diagnosis is made. Monod believed that the reason why there have

been no cures so far in France is that the diagnosis is made too late. In a personal case a two-step operation was done. The tumor was between the aorta and the pulmonary artery, so that hemostasis was impossible. In another case operation was possible even though there was an invasion of the mediastinum. The patient died suddenly two days later. Both of these operations were performed too late.

#### Acquired Natural Immunity Against Tetanus

The presence of tetanus antitoxin has been investigated in hundreds of serums by Ramon and Lemetayer, who have reported their results in the *Revue d'immunologie*. Specimens of blood were obtained from human beings and from different species of ruminants in Europe, Asia and Africa as well as from horses, pigs, dogs and laboratory animals. The serum of ruminants contains tetanus antitoxin in more or less abundance according to their age, habits and mode of life. The serum of human beings, horses, dogs, pigs and laboratory animals does not contain a trace of the antitoxin. These facts explain the rarity of tetanus in adult ruminants and its frequency in the others just named. The authors believe that this acquired immunity in ruminants is due to the fact that the tetanus bacillus enters the body with the food, with resultant production of toxin, which in turn is attenuated by the products of fermentation of other bacteria and results in the elaboration of an antitoxin in the serum.

#### Streptococcic Infections Treated with Vincent Serum

At the meeting of the Académie de médecine, January 21, Professor Vincent reported a case of meningitis treated by Hamon and Bolzinger. This is the eighth case of meningitis, due to hemolytic streptococci, cured by serotherapy. The patient, a man of 20, had such a severe attack of meningitis of otitic origin that a fatal issue was feared. The Vincent antistreptococcus serum was given intravenously and by lumbar puncture. The organism disappeared from the spinal fluid following the serotherapy supplemented by mastoidectomy.

Before the Académie des sciences, Oct 21, 1935, Professor Vincent stated that the invasion of the blood stream is governed by two essential conditions. The first depends on the state of allergy of the individual, the second on the fact that the streptococcus finds in the blood serum a medium little favorable to its growth and thus strains of streptococci develop that are seroresistant. There are at present reports of 310 cases of streptococcic cerebrospinal meningitis and septicemia treated by the Vincent serum, with 252 recoveries and fifty eight deaths. This is a proportion of 81 per cent cures and a mortality of 18.70 per cent. The most favorable results were obtained in early cases. These have been cured in five or six days. In the later cases the interval has been from six to eleven days. As to results viewed in relation to the situation of infection, septicemia originating in the throat or ear has resulted in 85.5 per cent recoveries. The cerebrospinal meningitis cases of otitic or traumatic origin have been followed by a smaller (64.55) percentage of recoveries.

#### Unusual Causes of Hemoptysis in Tuberculosis

At the February 7 meeting of the Société médicale des hôpitaux of Paris in a paper by Ameuille and his associates, four cases were reported of fatal hemoptysis in pulmonary tuberculosis due to aneurysms of the interstitial vessels, with resultant formation of one or more hematomas in the parenchyma of the lung surrounded by a shell-like capsule of fibrin. In all four cases the tuberculosis was of the ulceronodular type. In only one case was a denser irregular area on the roentgenogram, corresponding to the encapsulated hematoma, to be seen. Before searching for hematomas at necropsy, the authors advised placing the lung in solution of

formaldehyde for several days. Microscopic study revealed that the aneurysms were similar to those described by Rasmussen as occurring in the walls of cavities. In Ameuille's specimens as in Rasmussen's, there were afferent and efferent vessels with development of a sac filled with fibrin between these vessels. As to etiology, Ameuille is of the opinion that a segmentary necrosis of a tuberculous character takes place in a vessel in contact with a pulmonary lesion. This either results in the formation of an interstitial aneurysm with repeated small hemoptyses followed by a sudden fatal one or the latter takes place without any prior bleeding. Such pulmonary lesions have not yet been described, according to Ameuille.

## BERLIN

(From Our Regular Correspondent)

March 19 1936

### Diphtheria Mortality and the Insurance Physician

Diphtheria, on account of the severe form in which it appears in Germany, is of particular concern to the pediatrician. Dr Paschlau, staff member of a children's hospital, addressed the Berlin Pediatric Society on diphtheria. The question as to the efficacy of serum has been brought to the fore. It is to be remembered that in 1913 Professor Bingel of Brunswick, with a vast amount of data at his disposal was unable to distinguish appreciable difference between the effect of antidiphtheric serum and that of similarly injected plain horse serum (without antibodies). Since that time the skeptics have questioned the specific efficacy of antidiphtheric serum. After the war, diphtheria assumed a new character in many parts of Europe. Laryngeal diphtheria became less frequent, and since 1926 clinics in Berlin, Vienna, Dusseldorf and elsewhere have reported a great increase in cases of so-called toxic disorders of the nasopharynx which, despite abundant usage of serum have shown a mortality of 40 per cent or more. The amount of serum given has been increased, instead of from 200 to 500 antitoxic units per kilogram of body weight formerly employed as much as 100,000 units came to be given and this dosage has been increased even to 800,000 units. Results from these massive doses are disappointing. Paschlau brought out that in these toxic states the antidiphtheric serum in large doses as well as in combination with antistreptococcus serum, blood transfusions, arsphenamine and in the form of symbiosis serum has been proved powerless. Paschlau next traced the decline in the value of serotherapy since the armistice until now only on the first or second day of illness in toxic cases can even a modest degree of efficacy be anticipated. Few diphtheria patients, however, receive the serum at such an early stage. But if it became customary to administer serum at that early time the mortality from diphtheria would be greatly decreased. Statistics from two large children's hospitals in Berlin present an interesting contrast. At the Emperor and Empress Frederick Children's Hospital in only 37.2 per cent of all diphtheria cases and 34.4 per cent of the toxic type cases were injections of serum administered during the first two days of illness, but at the Berlin Municipal Orphanage and Foster Home the corresponding figure was 80 per cent. Accordingly the mortality in the Children's hospital averages 13.3 per cent, while that of the orphanage is only 1.96 per cent. So great a difference can hardly be due to a lack of order in the records of the more serious cases. The later term of serum administration at the Frederick Hospital is rather to be considered the responsible factor. The difference between the general mortality for Berlin (8.9 per cent) and that of the orphanage inmates (1.96 per cent) cannot be explained otherwise than by the greater efficacy of early administered antidiphtheric serum.

After so much research and with so many data the efficacy of the serum must be regarded as a fact. Of course great importance is attached to the time when the

serum is given, the propitious period lies so early in the course of the disease that the majority of patients never receive it until too late. According to Paschlau's experiments it is unnecessary to inject in excess of 1,000 antitoxic units daily per kilogram of body weight. Repeated injections are highly recommended so long as the local manifestations appear to be progressing. Apparently an antidiphtheria campaign to be successful must effect an improvement in urban public health centers for the working classes, especially with regard to the medical service. Paschlau emphasizes that so long as the insurance physician is compelled to treat from 100 to 150 patients daily, diagnoses of diphtheria in its earlier stages will continue to be difficult, besides, the insurance physician must still encounter much official red tape on account of the high cost of serum.

### Infection of School Children by a Tuberculous Teacher

In connection with the important topic of the infection of school children by a tuberculous teacher, Dr Marx, an official district physician, has furnished a valuable report. After the death from pulmonary tuberculosis of a Volksschule (elementary school) teacher, the children in all six grades of the school were given the Hamburger percutaneous tuberculin test. The results are given in the accompanying table.

#### Results of Hamburger Percutaneous Tuberculin Test

1 In the Deceased Teacher's Classroom			
Length of Time in Classroom	Number of Children	Positive	Negative
Six months	19	15	4
Two or more years	3	3	0
Five and one half years	32	22	10
Totals	54	40	14
2 In the Remaining Classrooms (Under Other Teachers)			
Total Number of Children	Positive	Negative	
184	36	148	

The difference thus speaks for itself. Roentgen examination of the group of forty children showed twenty-four in whom no focal shadows indicative of tuberculosis could be detected (slight lime deposits in the hilus were not regarded as pathologic) two inactive types, three suggestive types, and active tuberculosis eleven. Among the children from the other classes who showed positive reactions (thirty-six) there were found only two presenting active tuberculosis, two showed suggestive and eight inactive types of the disease, the remainder showed no shadows of foci.

Naturally in several cases the existence of independent familial sources of infection had to be taken into account. However, careful examination permitted of no doubt that the deceased teacher had been the sole source of infection for a great majority of those children who showed positive reactions. The data in this case may be regarded as a valuable contribution to our knowledge of what may be expected from an actively tuberculous teacher. The most expedient indication seems to be diagnostic group examinations of teachers, and these have already been undertaken in the affected district.

### Warning Against Public Recommendations of Medicaments

Time and again, for many years, responsible medical professional publications and organizations have sought means with which to curb the unauthorized (and hence naturally more favorable) recommendations and testimonials of medicaments by certain physicians. The propriety or efficacy of the many attempts heretofore made to deal with this problem is dubious enough (THE JOURNAL, Sept 9 1933, p 866). It is therefore interesting to know that the Berlin Aerztzammer (Chamber of Physicians) has issued a public notice, which is official for

physicians and which bears the superscription "Warning! In this notice all physicians are urgently requested to exercise the greatest possible reserve in the matter of public recommendations. The Aerzteammer must recently have observed that these unseemly recommendations, so obligingly given, were often being exploited by manufacturers in a manner contrary to the intention of the physician in question. If such recommendations are used for lay advertising then, according to decisions of the medical court of honor, the Aerzteammer must move that the physician be proceeded against as a violator of professional ethics. Only a short time ago the manufacturer of an aperient released "Confidential Information for Physicians." This man had obtained advice from various physicians which, according to the representation, was to be solely "for his own personal information" and which he subsequently caused to be printed. Hence the Aerzteammer urges that the practice of recommending medicaments be drastically curtailed or, better still, completely abandoned. This threatening admonition, it is hoped, may prove more effective than previous attempts to regulate this practice.

### Congenital Dislocation of the Hip Joint

The Erlangen anatomist Professor Pratje while studying the ossification of the pelvis, observed in several cases of congenital dislocation some remarkable variations. Changes occurring in the region of the ischia have indeed been recognized for quite a while. Development is clearly retarded at the time when the center of ossification first appears as well as in further course of growth. In cases of unilateral dislocation the center of the afflicted side is almost always a third smaller, namely, it possesses on an average a diameter smaller by 5 mm. In cases of bilateral dislocation there is a correspondence between the two sides. The joint socket in children presenting diseases of the hip joint shows a further flatness the upper portion remains steep and the rim of the socket is lacking. Thus at about the age of  $2\frac{1}{2}$  years the development corresponds to that of a normal infant aged 6 months. Following reduction of the dislocation, a normal socket can still be formed. In the second fusion of the bones, namely the fusion of the pubis and the upper ramus of the ischium, a similar retardation of development may be detected. While normally it requires from four to five years for the bones to become fused, in some of the cases observed it took seven years and in one case as long as twelve years. An open symphysis presents itself between the ends the length of which on the dislocated side is greater by many millimeters than the length on the normal side, in cases of bilateral dislocation the development of both sides is retarded. The center in the trochanter major appears much later on the diseased side and is always smaller than on the normal side, in bilateral disease this inferiority is equal. The normal development is temporarily retarded. Normal development is made possible by reduction. Whether it is a question of local retardation or of a retardation of the entire bodily development has not yet been finally decided. It is certain that these disorders are due to a hereditary embryonic defect, the power of which to transmit itself is rather slight. Pratje arrives at the following conception of the origin of congenital hip joint dislocation. Primarily it is a question of retardation of the normal course of development, not of a malformation due to arrest of development or to inherent deformity. As a result at the time when function should begin, both joint socket and cordyle are too flat and the socket rim is far too underdeveloped. Consequently the dislocation can be produced by a trauma or by normal functioning. If the dislocation is reduced early the normal development even if arrested resumes its course; if on the other hand the dislocation persists, functional phenomena of a wholly different kind may result, such as disorders of the vascular supply, these in turn lead to further severe disturbances of the

ossification and to pathologic states refractory to orthopedic and surgical intervention. The predisposition toward retarded development is inherited. The environment may strengthen or weaken the hereditary tendency. In this way the too flat socket originates. In undeveloped joints, function itself may lead to dislocation, in such cases hereditary predisposition and environment combine. Endogenous or exogenous causes act in unison, although the endogenous, the hereditary predisposition may be considered as the primary cause.

### Investigation of Nonhereditary Feeble-mindedness

A study of the first eighty cases recorded in a genealogical table by the department of genetics of the Erfurt (Thuringia) municipal health bureau shows fifty-one patients who have attended the school for backward children. It could be demonstrated that 76.47 per cent of this group were afflicted with hereditary disease, a hereditary taint could not be proved in six cases, an exogenous injury was a factor in two cases, and neither exogenous nor endogenous injuries could be detected in four cases. On the basis of these observations the relative incidence of hereditary and nonhereditary feeble-mindedness in early childhood was verified. The marked rarity of nonhereditary feeble-mindedness was likewise demonstrated. Since the first school years are the most propitious for such examinations and offer the best criteria, seventy-two pupils of the school for backward children were made to fill out a special questionnaire and examination blank. The gathering of accurate data was hampered, since occasionally the mother or father was unknown. Despite this handicap 236 brothers and sisters were established. Of this number alone 20.3 per cent attend school for backward children—in other words are mentally deficient. In all, 47.2 per cent of the seventy-two have tainted brothers and sisters, without including many borderline cases. Similarly, tainted parents, grandparents and so on are discovered in 52.8 per cent of the persons studied. This number is increased by about four when the entire tainted genealogy is considered. Therefore forty-two cases, or 58.33 per cent of the total, present histories of hereditary taint. By careful computation a maximum figure of sixty-four hereditary cases is arrived at against eight nonhereditary cases, a proportion of 88.8 per cent to 11.1 per cent.

### BELGIUM

(From Our Regular Correspondent)

March 15, 1936

### International Congress on Occupational Diseases

The seventh Congress on Occupational Accidents and Diseases was held recently at Brussels under the presidency of Mr. Gilbert. The assembly was divided into two sections, one of which presided over by Professor Langelez dealt with occupational medicine while the other, dealing with accidents was headed by Mr. François.

### HEAD INJURIES

Of 100 patients presenting cranial injuries, fifty survive. Thirty-five of the survivors present sequels and fifteen are pronounced cured. These cases are scarcely stabilized in less than twelve months subsequent to the accident. They then enter that third period which was the subject of the papers read. The term of one year fixed as a point of departure, is doubtless arbitrary, however it seems to constitute the most appropriate time from which to date this third period and study its evolution. Lippens stressed the difficulty of precise diagnosis and the necessity for thorough specialized examinations (ophthalmologic, cochleovestibular, neurologic, psychiatric, encephalographic, tensional and biologic). The measure of diastolic tension of the central retinal artery is an important but not pathognomonic factor in diagnosis. The pressure and modifica-

tions in the composition of the cerebrospinal fluid are not constants, yet they are of value. What appears to be the most reserved prognosis need not be the most unfavorable.

#### INJURIES OF THE HANDS

In addition to papers by Neuman and Bohler on the treatment of hand and finger injuries, Imbert submitted a study of lesions on the upper extremities in which he formulated two conclusions. 1 To the upper limbs, the fingers are everything, disturbances caused by an amputation of the fingers are almost as serious as an amputation of the arm. On the lower limbs, on the contrary, the seriousness of an amputation is increased the higher the level at which it takes place. Amputation of the toes is of minimal importance. 2 To the upper limbs a prosthesis is well nigh useless, to the lower limbs on the contrary, even the most simple prosthesis may determine the patient's ability to resume work. This difference is due to the fact that in the upper limbs it is mobility that counts, in the lower limbs, solidity. As mobility is the essential quality of the fingers, their fixation in any one position, whether flexed or extended is disastrous from a functional point of view. The thumb is the most useful, provided that at least one opponent muscle remains to it. This digit possesses a pathologic as well as a physiologic individuality. It stiffens less readily than the other digits and among them a simultaneously physiologic liaison, often a source of trouble, exists.

#### METHODS EMPLOYED IN COMBATING DUSTS

In evaluating any dust collecting apparatus the following factors must be taken into account: space occupied by the machine, efficiency, evacuation of the collected dust, temperature of the gas, expenditure of energy entailed, and the costs of installation and maintenance. There are three methods of eliminating dust and these correspond to three different types of apparatus: the dry, the wet and the electrical. Dust collectors of the 'dry' type may be based on the use of sacks, on gravity or on centrifugation. Wet or wet-screen apparatus may depend on a descending stream of oil or of water. The principle of the electrical apparatus is ionization.

#### GASES THAT ESCAPE FROM FIRE DAMP VEINS

Mr. Brey of Liege reviewed the gases found in Belgian mines. He discussed those which are encountered accidentally (sulfuretted hydrogen, carbon monoxide, carbon dioxide) and outlined briefly how they may be detected. The principal gas emitted is commonly known as fire damp which is composed of methane from 93 to 99 per cent, ethane less than 3 per cent, nitrogen, carbon dioxide, and hydrogen present only in traces if at all. For purposes of an anti-fire damp campaign, fire damp may be considered as pure methane. The most common device for the detection of fire damp is still the flaming safety lamp but to be of service it must be in competent hands. Other apparatus for prompt detection of fire damp are the Leon-Montluçon grisoumeter, the Spiralarm Naylor grisoumeter, the Zeiss interferometer, the Daloz apparatus and the McLukie apparatus.

#### DIAGNOSIS OF PAIN IN TRAUMATISM

De Laet stated that pain itself is a disabling sequel or it participates to some degree in the disability proper. Therefore it should be evaluated with the greatest possible accuracy. He reviewed the signs to be considered in making complete clinical examination of the patient: possible simulation, papillary dilatation, the pulse rate, the arterial pressure and the specific sign, fall of the urinary pH which he emphasized.

#### LESIONS DUE TO ELECTRICITY

Strassen of Liege said that 'electrical traumas' are of two varieties: (a) 'electrical shock' presenting the general phenomena of electrocution and (b) local lesions which have a characteristic appearance and must not be confused with ordinary burns caused by fire or chemicals. Any person suffering

from electrical shock should be considered in a state of apparent death. Treatment therefore should be similar to that employed in cases of submersion. As with drowned persons the body may be white or blue, but, regardless of the type of discoloration, basic treatment consists of artificial respiration practiced over a period of hours. The treatment of injuries due to electricity should be above all "conservative." Immediate amputation of carbonized members is seldom indicated. One should await until a precise natural demarcation between healthy and carbonized tissue has taken place. Mobilization of the members should be effected as early as possible in order to conserve the maximum tonicity of the undamaged tissues and to render the cicatricial tissues as flexible as possible.

#### Occupational Diseases in Belgium

The Belgian law providing compensation for damages due to occupational diseases dates from 1927. In the *Bruxelles médical* Dr. Langelez examines the results of this legislation. Up till 1934, only three diseases could be made the basis for such compensation. These were saturnism, hydrargyrisms and anthrax. Since 1934 the following diseases have been added to the original list: intoxication from phosphorus and its compounds, from arsenic and its compounds, from carbon disulfide, from benzene—its homologues, their amines and nitro derivatives, and from hydrocarbons of the fatty series and their chlorinated derivatives, pathologic disturbances due (1) to radium and other radioactive substances and (2) to roentgen rays, epitheliomas of the skin due to a handling of tar, pitch, bitumen, mineral oils, paraffin and all compounds or residues of these substances. Lead remains the most redoubtable of industrial poisons and saturnism the most truly classic of occupational diseases. Of a total of 436 cases in which indemnities were paid, 91 per cent have to do with saturnine intoxication. The two occupations in which the threat of saturnism looms largest are at present metal glazing and the manufacture of electrical accumulators. In seven years, twenty-seven cases of anthrax were recorded, the greatest number for any year was ten in 1929. Averages for the other years ranged from two to four cases. The most perilous industry from the standpoint of anthrax is the manufacture of gelatin: sixteen cases out of the twenty-seven were traceable to this activity. The manufacture of gelatin entails the utilization of bone fragments imported from foreign lands, particularly the Indies.

## Marriages

E. ROSS JENNEY, Los Angeles, to Miss Agnes Victoria Anderson of Oslo, Norway, in Santa Barbara, Calif., April 25.

WILLIAM DOBB ANTHONY to Miss Mary Maitland Parham, both of Waycross, Ga., in Waco, Texas, February 27.

CHARLES FRANCIS LEICH, Evansville, Ind., to Miss Carroll Mabel Duncan of Indianapolis, April 25.

SAMUEL MAYER DODER, Washington, D. C., to Miss Miriam Joyce Selker of Cleveland, April 13.

JAMES ANTHONY MCHUGH to Miss Georgia Mary Ingalls, both of Stockton, Calif., April 1.

IRVING J. WOLMAN, Philadelphia, to Miss Roslyn Carroll Stone of New York, April 12.

SEALS S. SPEER, Bay St. Louis, Miss., to Miss Alma Boyd of Converse La., March 7.

RICHARD K. FRAWLEY to Miss Alma Dustman Oakleaf, both of Titusville, Pa., April 25.

JOHN SUMTER CUNNINGHAM to Miss Phyllis Fenn, both of Hartford, Conn., recently.

CHARLES C. W. JUDD to Miss Mary Evelyn Webb, both of Baltimore, recently.

## Deaths

John Ridlon ♂ Newport, R I, well known orthopedic surgeon, died, April 27, at the Newport Hospital, aged 83. Dr Ridlon was born in Clarendon, Vt, Nov 24 1852. He received an A B degree in 1875 and an A M degree in 1878 from the University of Chicago, and his M D degree from the College of Physicians and Surgeons, Medical Department of Columbia College, New York in the same year. Dr Ridlon was an intern at St Luke's Hospital New York, from 1878 to 1880, and later attending orthopedic surgeon at the New York Orthopedic Dispensary and Hospital and instructor in orthopedic surgery at the New York University Medical School. He also had been a surgeon of the first orthopedic division of the outpatient department of Bellevue Hospital and assistant surgeon at the Vanderbilt Clinic, New York. From 1892 to 1898 he was professor of orthopedic surgery and head of the department at Northwestern University Medical School, Chicago and held a similar professorship in the Chicago Post-Graduate Medical School from 1892 to 1893, the Northwestern Woman's Medical School from 1898 to 1912 and Rush Medical College Chicago from 1909 to 1912. During the World War he served in the Medical Reserve Corps of the Army, retiring as a lieutenant colonel in the auxiliary reserve.

Dr Ridlon was secretary of the Section on Orthopedic Surgery of the American Medical Association from 1912 to 1913 and a member of the House of Delegates from 1914 to 1922. He was past president and secretary of the American Orthopedic Association, honorary member of the British Orthopedic Association a member of the Clinical Orthopedic Society and a fellow of the American College of Surgeons. He was an orthopedic surgeon at the Wesley and Presbyterian hospitals, Home for Destitute Crippled Children and the Home for Convalescent Children all in Chicago, and the Home for the Friendless at Evanston Ill. He was also orthopedic surgeon to the Mercy, Michael Reese and Evanston (Ill) hospitals and the Newport (R I) Hospital, later becoming consulting orthopedic surgeon. Dr Ridlon was a founder and a past president of the Home for Destitute Crippled Children, Chicago. He was awarded an honorary A M degree from Tufts College in 1899 and Sc D from the same college in 1926. He is said to have been the only living American orthopedic surgeon who knew Hugh Owen Thomas, and the first to adopt his methods. Dr Ridlon was a kindly, genial man with a keen sense of humor and was a source of inspiration to all the younger men fortunate enough to be associated with him.

Albert Harrison Brundage, Woodhaven, N Y University of the City of New York Medical Department 1885 member of the Medical Society of the State of New York fellow of the American College of Physicians, emeritus professor of toxicology and physiology, departments of medicine, dentistry and pharmacy, Marquette University Milwaukee, president of the New York State Board of Pharmacy in 1903, member of the Volunteer Medical Service Corps during the World War, inspector of the board of health from 1904 to 1921 toxicologist and later consulting toxicologist to the Bushwick Hospital author of A Manual of Toxicology published in thirteen editions, contributed articles on pharmacy and various subjects to technical and other journals, aged 74, died March 12, in the Central Islip (N Y) State Hospital of pneumonia.

Bramerd Hunt Whitbeck ♂ New York, Columbia University College of Physicians and Surgeons, New York 1903 professor of orthopedic surgery, University of Vermont College of Medicine, Burlington, member of the American Ortho-

pedic Association, fellow of the American College of Surgeons, served during the World War, aged 58 attending orthopedic surgeon to the Neponsit Beach Hospital for Children Rockaway Beach, consulting orthopedic surgeon to the Roosevelt Hospital, New York Memorial Hospital, Canandaigua, Vassar Brothers Hospital, Poughkeepsie, Benedictine Hospital, Kingston, St Luke's Hospital, Newburgh, and the Lawrence Hospital, Bronxville, where he died, February 29, of cerebral hemorrhage and arterial hypertension.

William Day Chapman ♂ Silvis, Ill, Washington University School of Medicine, St Louis 1908 past president and secretary, and for many years councilor of the Illinois State Medical Society, past president and secretary of the Rock Island County Medical Society, member of the House of Delegates of the American Medical Association, 1933 1935, served during the World War, aged 52, died, March 16, of facial erysipelas.

John Edward Hall Atkeisson, Chicago, Vanderbilt University School of Medicine, Nashville, Tenn, 1897 member of the Illinois State Medical Society, member of the Associated Anesthetists of the United States and Canada, aged 61, attending anesthetist to the Columbus Lutheran Memorial and St

Mary of Nazareth hospitals and the Grant Hospital where he died, March 1, of myocarditis coronary sclerosis uremia and gangrene of the right leg.

Isaac Walter Kite ♂ Surg, Lieut Commander U S Navy, retired Washington D C, Medical College of Virginia Richmond, 1885, entered the navy in 1886 and retired in 1910 for incapacity resulting from an incident of service, served during the Spanish-American and World wars, aged 74, died February 3, in the Naval Hospital of carcinoma of the prostate.

John Neilson Reik, Pelham Manor, N Y University of Maryland School of Medicine Baltimore, 1900, fellow of the American College of Surgeons served during the World War, formerly surgeon to the Baltimore Eye Ear and Throat Hospital, aged 63, died, February 24, in the Mount Vernon (N Y) Hospital of diabetes mellitus and cerebral thrombosis.

Seth Newland Thomas Auburn, N Y University of Buffalo School of Medicine 1900 member of the Medical Society of the State of New York and the Associated Anesthetists of the United States and Canada on the

staffs of the Auburn City Hospital and the Mercy Hospital, aged 62, died, March 4, of cerebral hemorrhage.

Edwin M Chauncey, Albion Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899, member of the Michigan State Medical Society, served during the World War, formerly member of the school board, aged 62 on the staff of the Sheldon Memorial Hospital where he died February 20 of pneumonia.

Eric Albert Crull, Fort Wayne, Ind, Marion-Sims College of Medicine St Louis, 1897, served during the World War at one time city health officer a founder, medical director and superintendent of the Irene Byron Sanatorium, secretary of the staff of the Lutheran Hospital, aged 59, died March 15, of cardiovascular disease.

Haroutoun Asadour Adrounie ♂ Hastings Mich University of Illinois College of Medicine Chicago, 1913, formerly secretary of the Barry County Medical Society county coroner, on the staff of the Pennock Hospital, aged 53, died February 28, in the University Hospital, Ann Arbor, of cirrhosis of the liver.

James Henry Colson ♂ Gainesville, Fla, College of Physicians and Surgeons, Baltimore, 1896, past president of the Alachua County Medical Society, formerly member of the state legislature, superintendent of the Florida Farm Colony, aged 69, died suddenly, March 5 of organic heart disease.



JOHN RIDLON M D 1852-1936

Frank B Thompson ⊕ La Fayette, Ind , Starling Medical College, Columbus, 1882, fellow of the American College of Surgeons, chief of the surgical staff of the La Fayette Home Hospital and surgical director of St Elizabeth's Hospital, aged 79, died, February 1, of chronic myocarditis and arteriosclerosis

John Henry Mountain, Middletown, Conn , Jefferson Medical College of Philadelphia, 1896, member of the Connecticut State Medical Society, health officer of Middletown, formerly state senator, on the staff of the Middlesex Hospital, aged 66, died, March 6, in St Raphael's Hospital, New Haven

Harold Ball Disbrow ⊕ Lakewood, N J , Johns Hopkins University School of Medicine, Baltimore, 1916, fellow of the American College of Surgeons, served during the World War for many years on the staff of the Paul Kimball Hospital, aged 46, died, March 21, of cerebral hemorrhage

Omar J East, Reed City, Mich , Detroit College of Medicine, 1899, member of the Michigan State Medical Society, health officer of Reed City, on the staff of the Reed City Hospital, aged 68, died, March 10, in the Blodgett Memorial Hospital, Grand Rapids, of meningitis

Herman Fried ⊕ New York, Eclectic Medical College of the City of New York, 1908, Long Island College Hospital Brooklyn, 1909, associate radiologist at the Hospital for Joint Diseases and the Beth David Hospital, aged 53, died, March 6 of carcinoma of the stomach

Chett McDonald ⊕ Beverly Hills, Calif , University Medical College of Kansas City, 1891, member of the Missouri State Medical Association, at one time coroner of Jackson County, Mo , aged 71, died, February 13, of coronary sclerosis and arteriosclerosis

Gertrude Mildred Johnson, Battle Creek, Mich , American Medical Missionary College, Chicago, 1904 fellow of the American College of Physicians, for many years on the staff of the Battle Creek Sanitarium, aged 57, died, January 29, of lymphatic leukemia

Paul Maximilian Karl Luck, Passaic, N J University of the South Medical Department, Seavance Penn, 1898 formerly member of the board of education, aged 60, on the staff of the Beth Israel Hospital, where he died, February 27, of pneumonia

John Benjamin Dunn, St Cloud Minn , Rush Medical College, Chicago, 1883, formerly county coroner and health officer of St Cloud, at one time on the associate staff of the St Cloud Hospital, aged 76, died, February 6, of carcinoma of the prostate

Geoffrey Marshall Morris, Globe, Ariz , Dalhousie University Faculty of Medicine, Halifax, N S, Canada, 1928 formerly health officer of Sumner County, Tenn aged 34 died, February 25, in the Gila County Hospital, of pneumonia

William Roderick Cullen, Mankato, Minn University of Michigan Department of Medicine and Surgery, Ann Arbor 1879, aged 84, died, February 13 in St Joseph's Hospital of hypertensive cardiovascular disease and adenoma of the prostate

Adelbert Henry Mambert, Kingston, N Y , Albany Medical College, 1878, member of the Medical Society of the State of New York, on the staff of the Kingston Hospital, aged 81 died January 27, of chronic nephritis and myocarditis

Charles Wilson Curlin, Fulton, Ky , Vanderbilt University School of Medicine, Nashville Tenn, 1899, member of the Kentucky State Medical Association, owner of the Curlin-Neill Hospital, aged 57, died, March 2, of angina pectoris

John Albert Topper ⊕ Surg, Lieut Commander U S Navy, Washington, D C Jefferson Medical College of Philadelphia 1904, entered the navy in 1921 aged 55 died February 14 in the Naval Hospital of adenocarcinoma

William Sommerville Fullerton, St Paul, Bellevue Hospital Medical College, New York 1882 formerly secretary of the state board of medical examiners aged 78 died, February 7, of heart disease and cerebral hemorrhage

Amy Amanda Decker Holcomb, Mount Pleasant Mich Hahnemann Medical College and Hospital, Chicago 1895 aged 70 died March 18 in the Glenside Hospital Boston, of cerebral hemorrhage and arteriosclerosis

Edward Louis Robbins ⊕ Syracuse N Y Albany Medical College 1914 on the staff of the Crouse-Ingov Hospital aged 47, died, January 2 of coronary thrombosis

Donald Randolph McLennan Mayo Yukon Territories Queen's University Faculty of Medicine Kingston Ont Canada, 1897 aged 66 died January 16

## Bureau of Investigation

### ELORDA CREAMS

#### Another "Alice in Wonderland" Cosmetic

Because of the lack of any national control of claims made for cosmetics, the advertising agencies that prepare "copy" for their clients in the cosmetic field permit their copywriters' imagination to run riot Each year sees certain cosmetic advertisements that would appear to be the apotheosis of fantastic foolishness

We have become used to, and hardened against, the appealing claims made for face creams having as a base hormones from armadillos, turtles or ring-tailed monkeys Creams that make one thin and creams that make one fat Creams that are the result of years of "scientific research" by unnamed scientific researchers, creams that banish wrinkles, cares, worries and perhaps next the mortgage on the old homestead, creams that coax, if not the skin, at least a fancy price from milady's purse But the end is not yet! A large display advertisement appearing in a magazine devoted to women's interests asserts that there is now on the market "The Most Astonishing Developments in Beauty Care Ever Offered to American Women" It appears from the advertisement that most American women past twenty suffer from chronic dryness of the skin and premature wrinkles, but, explains the advertiser hope fully, while the two conditions usually go hand in hand, "the removal of one would mean the removal of the other" But how can they be removed

The answer lies in two amazing new creams Elorda Creams that are perfectly suited to performing this duty Elorda Creams see to it that your skin gets plenty of stimulation (to coax the glands into producing more softening sebaceous oil) and plenty of external lubrication

Should any question arise in the minds of those who can read an advertisement of this sort without a feeling of nausea as to just how the effects are going to be produced, the advertiser goes on to state

And the almost incredible reason for the effectiveness of Elorda Creams is that *they are made with gold!*

"Almost incredible" would appear to be the most conservative statement in the advertisement To any rational being, it would appear quite incredible Reading further, one is given to understand—if he knows enough—that "the gold in Elorda Creams is in a special scientific form—soft, smooth, pink in color" In other words, presumably colloidal gold is used and the modus operandi is still further elaborated thus

Each microscopic drop of this gold possesses a negative electrical charge On the other hand dead cuticle grime and other foreign matter in the skin has a positive charge As ever when positive meets negative they attract with the result that the gold carries the captured grime to the surface where it can easily be removed

Nor is this all, for the Brownian movement common to colloidal solutions is called into action

And because these atoms of liquid gold are in a state of constant agitation they act on the skin as massaging and stimulating agents Through their stimulating action normal circulation is restored and the skin is completely revitalized

In view of the fact that advertisements of this sort cost a great deal of money and that business concerns, even those which sell cosmetics, will not pay out money unless there is a large return to be expected, the thoughtful may well wonder whether science has not given the human race an undeserved compliment in classifying man as *Homo sapiens* It is doubtless true that any reference to gold will immediately stimulate the imagination and the greater the ignorance of chemistry, pharmacology and dermatology the greater the amount of stimulation It would be a gross understatement to say that there is not the remotest scientific basis for the incorporation of colloidal gold into face creams and it certainly would be no exaggeration to describe the advertisement of Elorda Creams as a particularly blatant example of cosmetic quackery



## Correspondence

### SEDIMENTATION RATE IN JUVENILE RHEUMATISM

*To the Editor*—In an editorial on the sedimentation rate in juvenile rheumatism (THE JOURNAL, March 14, p 925) the effect of anemia on this test is mentioned. It is also stated that the method of bringing the red cell count to normal before performing the test is too cumbersome for routine use. Payne and Schlesinger in their recent paper, which seems to be the basis of this editorial, say that there is an absence of any accurate method of making corrections for anemia.

It therefore seems important to call attention to the fact that a relatively easy and satisfactory method of correcting the sedimentation rate for the anemia factor was described in 1930 by Rourke and Ernstene (*J Clin Investigation* 8:545 [June] 1930). This method involves the simple procedure of centrifugating the tube containing the blood so that the hematocrit may be determined. From a chart constructed experimentally by these investigators the sedimentation rate which the blood sample would have if it had an arbitrary normal hematocrit of 45 may be determined.

Experience with the sedimentation rate used as a routine test during the past four years at the House of the Good Samaritan has decidedly shown the importance of correcting for changes in the volume per cent of the red blood cells. Relatively slight degrees of anemia may considerably accelerate the sedimentation rate, and a slight degree of anemia has been found to be quite prevalent in patients with rheumatic fever. Thus, many apparently abnormal rates fall well within the normal zone after the hematocrit has been determined and a correction made.

Any method which fails to correct for this anemia factor is subject to grave errors and therefore is not to be relied on.

The method of evaluating the effect of anemia by the use of a curve such as that described by Payne and Schlesinger does not make an actual correction and is therefore less reliable than the method of Rourke and Ernstene. It also involves the additional procedure of making a red blood cell count that is less accurate and more difficult to determine than the hematocrit. Furthermore, unless the red blood cell count is made on the same sample of blood as the sedimentation rate there is still greater chance for error, since the relative blood cell volume is not constant.

BENEDICT F. MASSFELL, M.D., Boston

### GARGLES

*To the Editor*—I should like to say a few words about the gargle, which has of late come into disrepute particularly since many investigators have discredited it.

Snow and Stern (THE JOURNAL, Sept 15 1934 p 831) conservatively suggest that the gargle does not reach the interior furrows. Harse (*Klin Wchenschr* 14:1244 [Aug 31] 1935) using the same technique (the subject gargles with a thin barium sulfate suspension before the roentgenogram is made) concluded that the gargle reaches the palatine arch and the upper tonsillar pole but does not reach the tonsils themselves or the posterior pharyngeal wall. It would be well if conclusions such as the latter could be confined to their own locality. Unfortunately reports emanating from Germany have a way of achieving international prominence and our own 1935 Handbook of General Therapeutics has embodied Harse's article into a chapter further indicting the gargle.

It is not my purpose to extol the gargle so much as to criticize the ultrascientific methods employed in denouncing it. It does seem more practical to look directly into the throat

than to take roentgenograms of the contrast medium. If any one will take the trouble of examining the throat of a subject who has just gargled with a thick suspension of bismuth subcarbonate, he will find that every part of the mouth and throat, including the tonsils, posterior pharynx and even the piriform recess, is coated. With the commotion that occurs during gargling, can anything less be expected?

JULIUS KAUNITZ, M.D., New York

### DISLOCATION OF THE KNEE JOINT

*To the Editor*—In THE JOURNAL, April 11, page 1252 the authors state that "the records of many large hospitals fail to show a single case of a complete dislocation of the knee." This statement is not in accord with the literature. I reported in THE JOURNAL, Oct 5, 1935, p 1111, a case of complete dislocation of the knee with photographs of the x-ray films before and after reduction. It is of interest that, in comparing the roentgenogram of my case with that of the later case, one is a mirror image of the other, for in my report the right knee was involved while in the latter the left knee was involved.

I am pleased to note that Conwell and Alldredge, the authors of the later case, also obtained excellent results, as did I in my case, by using the method of reduction and postreduction care as I described in my original article.

A. M. FICHMAN, M.D., Fort Wayne, Ind

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### MUSCLE CRAMPS

*To the Editor*—A white man, aged 36, American, has been troubled with muscular cramps in the extensor muscles of the left thigh in the toes in the fingers and in the lower chest region. He first noticed them in 1917. Since that time they have not seemed to be getting any more severe but the cramp in his left thigh is extremely severe whenever it does occur. He has never had any trouble with his right thigh. He experiences these cramps in his toes every night immediately following the removal of his shoes at bedtime but never has them at any other time. The cramps in his fingers usually come on at various times during the day and may be present in one or several fingers at the same time. He is a painter and repair man for high water towers and he is greatly alarmed for fear that he might sometime have a disastrous fall because of these muscular cramps. His work is not steady and he states that he is troubled just as much when he is not working as he is when he is working hard. He believes that occupation does not seem to influence him in respect to his muscular cramps. He has been told that some one was cured by one hypodermic treatment. If you know of any such satisfactory treatment I should like to be informed.

M.D. Nebraska

ANSWER—It may be a fair assumption that the patient does not have any detectable disease to account for muscle cramps over a period of twenty years; nevertheless, an attempt should be made to determine whether the muscle cramps are a manifestation of tetany. It seems quite obvious from the history that uremia, hyperventilation, and obstructive lesions of the proximal gastro-intestinal tract are absent. The correspondent should determine whether or not the Chvostek and Trousseau signs are negative. The blood calcium should be determined because of the slight possibility of hypoparathyroidism due to diminished parathyroid function. Since the patient is a painter, the possibility of chronic lead intoxication should be considered. If these investigations disclose nothing abnormal the cramps may be considered of the common variety which do not result from recognized disease. Hunter (*Internat Clin* 4:109 [Dec] 1932) gives an excellent description. Half awake in the morning one lazily stretches out and is suddenly seized in one calf with a very painful cramp which lasts about a minute during which the tendo achillis is powerfully contracted drawing the fore part of the foot downward. The mechanism of these cramps has been presented by Marx (*California & West Med* 38:96 [Feb] 1933). Muscle cramps are usually brought on by sudden exaggerated or wrongly directed impulses when a

muscle action does not meet the anticipated amount of resistance or is not checked by the controlling antagonistic muscles, as is normally the case. After producing a maximum contraction the superfluous amount of muscle energy liberated by the disproportionate impulse is converted into a muscular spasm."

Muscle cramps occurring during sleep appear to arise in the same manner as do those which follow stretching except that the primary muscle contraction is an involuntary or sleep movement in the former instance and voluntary in the latter instance.

The treatment during the episode is the forced manual extension of the muscle involved by the cramp. If, for example, the muscles of the calf are involved, the foot should be forcibly dorsiflexed. Prevention of the episodes is usually simple avoidance of unopposed muscular contraction, as during stretching or swimming in cold water by those having a predisposition to cramps. Individuals who suffer during the sleeping hours should be fitted with a special shoe or boot to prevent involuntary muscle contraction. In many instances such muscle cramps are relieved by the administration of dilute hydrochloric acid three times daily or one of the calcium salts such as calcium gluconate, in amounts of 4 Gm three times daily, or one of the acid bearing salts, such as ammonium chloride, which can be given in amounts as large as 3 Gm daily three out of each five days. A smaller amount of ammonium chloride will doubtless suffice.

#### DEMENTIA PARALYTICA

To the Editor—A man about 40 years of age whose condition has been diagnosed as syphilis of the central nervous system with incipient dementia paralytica has been under my care for the past six months. This diagnosis is based on both neurologic and serologic examinations. He has received hyperthermy with intravenous typhoid. He also has had Potassium iodide 10 minims (0.6 cc) for three months three times daily.

Tryparsamide 0.3 Gm for twenty doses

Bismuth in oil 0.025 Gm for twenty doses

Colloidal mercury 2 grains (0.13 Gm) for twenty doses

At present the blood Wassermann reaction is 4 plus. The neurologic condition has shown no definite changes either for improvement or for progression. Mentally however the patient is more cheerful. Because he strenuously objects to a spinal puncture until his blood is negative the cerebrospinal fluid has not been reexamined. I will appreciate any criticism you may make as to my method of treatment to date and what help you can give me as to the future treatment of this patient. Kindly omit name.

M D West Virginia

ANSWER—The question does not state what psychiatric clinical manifestations the patient shows. Not all parietic patients are benefited even by hyperpyrexia for the percentage of remissions is only from 30 to 40 per cent. One has the impression that the fever was not elevated sufficiently in the treatment given this patient.

It is suggested that a course of twelve bouts of hyperpyrexia, reaching 104 to 105 F for at least four hours, be given. The interim treatment of heavy metals and tryparsamide is correct. It is suggested instead of typhoid vaccine that malaria be given.

#### NEVUS VASCULOSUS

To the Editor—I have under my care a boy aged 8 months a perfectly normal and developed infant who has a congenital 'nevus vasculosus' or angioma on the right cheek. The growth begins at the angle of the lip and is approximately 3 by 4 cm in size of port wine color and somewhat elevated the surface being studded with small nodules. He is now under the care of a competent radium specialist who has given three treatments within a period of five months. The growth has not diminished in size but shows some blanching. The parents have been told that the radium emanations will store up in the baby's system and cause trouble in later years. Is there any clinical data to support this theory? What in your opinion is the most satisfactory treatment of the condition from a cosmetic standpoint? Please omit name and address.

M D New York

ANSWER—The radium treatment carried out in this case as described is probably the best thing to do to blanch the redness. For the elevated part of the lesion it would probably be desirable to freeze with carbon dioxide. After radium has been used, because of the obliteration of blood vessels that it causes the skin is more sensitive to freezing with carbon dioxide and the treatment should be made about half as long as on untreated skin say from five to seven seconds instead of from ten to fifteen. In the application of radium to the surface as is done in this case there is not the slightest danger of systemic effects from the storing up of emanations in the tissues. The only thing to guard against is overdoing the effect on the skin.

Radium or x-rays on the one hand or carbon dioxide on the other give the best cosmetic results. Carbon dioxide is advantageous in elevated lesions. In flat lesions they cause some shrinking of the contour of the surface. Neither is entirely satisfactory in cosmetic results in port wine marks.

#### ANOREXIA IN A CHILD

To the Editor—Dr. Boyd's article on growth brings to mind one of my most puzzling cases. A girl now nearly 3 years of age has had no appetite since birth. Always she has had to be fed and even then will hold food in her mouth for as long as half an hour before either swallowing or spitting it out. Almost daily her mother must punish her to get her to swallow. She likes to play with candy but makes no attempt to eat it. At birth she had a long head and a cleft palate the latter being blamed by the surgeons and pediatricians who have seen her for her aversion to eating. An excellent repair of the cleft palate did not improve the condition at all. In addition to this or because of it there has been no growth of the long bones particularly the humerus and femur. Otherwise she has seemed to develop normally. She is not thin or anemic. She is contented and quiet and she plays and talks normally. Her mentality is apparently normal for her age. From this description can the type of this abnormal growth be diagnosed and is any treatment possible?

HAROLD C MILLER M D Eglen W Va

ANSWER—It seems possible that there are two separate conditions here, though a single explanation can be given. The commonest cause of refusal of food or of holding it in the mouth for long periods before swallowing it or spitting it out does not lie in the child but in the handling of the child. Most such children respond quickly to change of environment, particularly if they are placed among other children in a hospital or a child-caring institute. It is to be emphasized too that the quantity of food a dwarf requires depends on size, not age.

On the other hand there is certainly here an anomaly of the palate and of the factor that causes growth of the long bones. Symmetrical retardation of growth with prolonged refusal of solid food occurs in some cases of the symptom complex known as renal rickets or dwarfism. There is then usually a greater or less degree of polyuria and polydipsia. The urine contains a trace of albumin, sometimes a few pus cells, sometimes granular casts. There may or may not be rachitic changes in the bones. Some of these cases are undoubtedly due to pituitary malfunction and probably would respond to the growth promoting factor were it obtainable. Improved appetite has been reported following the administration of thyroid but has been only temporary. Apert recommends a milk and vegetable diet with small doses of sodium citrate. Such treatment will depend on the finding of loss of kidney function and of change in mineral metabolism.

Finally the data supplied suggest an abnormal growth differential of the type of achondroplasia. A definite diagnosis cannot be made without more data than have been supplied.

#### HYDATIDIFORM MOLE WITH PERSISTENT BLEEDING

To the Editor—A married woman aged 23 has always been in perfect health except for an allergic sinusitis and an irregular menstruation. She began menstruating at the age of 13 years. Menstruation was always irregular sometimes with intervals of four or five months but it was normal when it did come. The patient became pregnant in the fall of 1932. No menstruation occurred for four months and then there was a miscarriage. No fetus was found just a few pieces of a rather darkish spongy placenta. These pieces were not closely observed. The patient became pregnant again in the fall of 1934. All signs and symptoms of developing pregnancy were observed. No flow or discharge took place until August 1935 then pain and flowing occurred. She was curetted with a dull curet and the gloved finger. Again no fetus was found. Peculiar looking pieces of afterbirth were submitted to a pathologist who pronounced the condition a benign hydatid mole. After eight weeks of uneventful recovery an Aschheim-Zondek urine test for pregnancy was done and it was negative. No menstruation flow or discharge after the last miscarriage occurred for a little over three months and then there was a rather profuse hemorrhage which gradually subsided over a period of ten days. She is still in bed although not flowing. What shall I do?

M D California

ANSWER—Every woman who has expelled a hydatidiform mole or has had one removed should have an Aschheim-Zondek or a Friedman test of the urine performed once a month for the first six months after the mole has been removed. For the following six months the biologic tests should be performed every two months and during the second year three more tests should be made. Although a chorionepithelioma may occur many years after a hydatid mole has been expelled it is generally safe to discontinue the biologic tests after two years. If however irregular bleeding occurs one of these urine tests should be performed without delay regardless of whether such bleeding occurs a few weeks or a few years after the removal of a hydatidiform mole. A positive Aschheim-Zondek or Friedman test weeks or months after the expulsion of a mole is indicative of a malignant change unless a new pregnancy has started. Hence whenever a positive urine test is obtained, one should first be certain to rule out a new pregnancy. This may not be easy at first. Usually in the presence of a new pregnancy there is an amenorrhea whereas when a chorionepithelioma

homa is present there is irregular and often profuse bleeding. Since an abortion may occur early in a new pregnancy, all tissue expelled from the vagina should be carefully examined microscopically. If a positive Aschheim-Zondek or Friedman test is obtained after the expulsion of a hydatidiform mole, especially if there has been irregular bleeding, a curettage should be performed and the scrapings should be examined by an experienced pathologist. In addition, evidence of metastases of a chorionepithelioma should be sought in the vagina and in the lungs. A roentgenogram will help to determine the latter. In the present case another Aschheim-Zondek test should be made and a curettage performed without delay.

#### TRICHOMONAS INFECTION IN MALE

*To the Editor*—I am treating a man who has a urethritis and also a prostatitis due to *Trichomonas*. A number of recent examinations made of the urine by a competent technician were positive and I am confident that there is no doubt as to the diagnosis. There is a stricture about the middle of the urethra which I attribute to this infestation owing to the fact that the patient gives a history of never having had any venereal infection. Also the prostate is enlarged and boggy and very tender. About one year ago the patient's wife had a severe and protracted vaginitis which was due to *Trichomonas* infestation but she has not shown any evidence of a return of the trouble. Please outline a treatment that I may use in this man's case that will enable me to relieve him of his trouble. Kindly omit name and address. MD West Virginia

**ANSWER**—Infection of the urethra in the male and of the prostate with *Trichomonas* is comparatively infrequent. The presence of *Trichomonas* in the urine is particularly difficult to establish. Although a number of cases have been reported in which *Trichomonas* was found in the secretion from the urethra and from the prostate it is not at all common. Stricture of the male urethra as a result of *Trichomonas* is even more unusual, since as a rule the infection is of a superficial type.

The treatment of infections of the urethra and prostate with *Trichomonas* in the male should be much the same as with the ordinary type of infection, namely, prostatic massage with increasing vigor, two or three times a week and Janet irrigations of the urethra. For the latter purpose solutions of potassium permanganate, 1:8,000, and acetic acid, 1:3,000, might be used on alternate days. Following massage, instillations in the deep urethra of mild protein silver 10 per cent or weak solutions of silver nitrate may be of benefit. Although it has no specific action, potassium iodide internally might also be given. Needless to say intercourse should be interrupted during the period of infection of either husband or wife.

#### STAMMERING BLINKING AND LEFT HANDEDNESS

*To the Editor*—A boy aged 6 years of normal mental and physical condition has suffered from stammering for the past two years. His natural tendency is toward left handedness but he has been trained by his parents to use his right hand as much as possible. For the past year he has been developing a marked blinking of both eyes. Do these features point to a symptom complex of a neurotic type? Do they have any relationship to each other? Please omit name and town.

MD New York

**ANSWER**—Orton has found that many left handed individuals develop speech disturbances when they are forced to write with their right hands. He has developed an intricate theory of cerebral dominance which is not particularly intriguing but the empirical observations have been confirmed.

It is suggested that the first step be to allow the boy to write as he wishes, with his left hand. The blinking of his eyes is a neurotic symptom and probably has no relation to his stammering if the latter be due to the foregoing mechanism. Both the stammering and the blinking may be symptoms of a neurosis and if changing his writing to the right hand has no effect on stammering, the whole syndrome should be treated as due to a neurosis.

#### INDUSTRIAL HAZARD IN POLISHING COMPACTS

*To the Editor*—I should appreciate any information you have available as to the substances used in polishing the chrome plate and enamel on cosmetics or cosmetic containers. Is the inhalation of the dust arising from this process coming from the polishing agents chrome or enamel responsible for any constitutional disturbances? Please omit name.

MD New York

**ANSWER**—The thickness of chrome plating on metal cosmetics or metal cosmetic containers is so slight (about one-millionth inch) that polishing or buffing is ordinarily objectionable. Particularly is this true of the cheaper varieties of compact. Chrome plating should yield so bright a finish as to make polishing or buffing unnecessary. When carried out it

is customary to use levigated white aluminum oxide. This is mixed with stearic acid to give body to the compound. At times chrome plated objects are polished with a mixture of chromium oxide and stearic acid. Prior to chrome plating of compacts and most other objects, a preplating with nickel is carried out. This nickel plating calls for polishing, which commonly is done with unslaked lime again mixed with stearic acid and possibly with Japanese wax. The highly polished surface of enamel or porcelain compacts is obtained not by wheel polishing but by fire polishing in a furnace. None of the substances used as polishes, or the dusts from the metal surfaces or from the polishing wheels, will cause any characteristic systemic occupational disease. When green chrome oxide is employed "chrome holes" readily are produced. In nickel polishing the calcium oxide may lead to irritation of the skin, eyes or throat. All dusts are harmful to some extent, so that in this work respiratory inflammation is a fair expectancy. Increased rates of pneumonia and tuberculosis long have been associated with the trade of polishing and buffing.

#### PERSISTENCE OF QUININE EFFECT

*To the Editor*—A recent obstetric case raised a question in my mind as to whether a prolonged delay of quinine activity was possible. A patient of mine scheduled for delivery Dec. 22, 1934 was still on deck by December 29. Since she was growing tremendous in proportion to the expected growth it was felt that induction of labor was indicated. Quinine sulfate 2 grains (0.13 Gm.) was given her every half hour following a castor oil cleansing. No immediate contractions were established and as the days went by an occasional spasm was felt but nothing to speak of. January 11 exactly two weeks after the attempted induction the patient went into violent labor and labored for more than twelve hours with the pains only two or three minutes apart. Little progress was made however as the head had attained unusual proportions by this time and the mother had a small pelvic outlet to begin with. The baby was finally delivered with Kielland's traction forceps. The question that has for a long time puzzled me and that I wish clarified is this: Can it be possible that after two weeks delay the quinine induction finally began to work? From my observations in previous cases I was well acquainted with the tumultuous and violent labors precipitated by this method and I am certain that this case was one of that type.

M F STEIN MD Chicago

**ANSWER**—Quinine does not stay in the system as long as two weeks, and one could hardly visualize a quinine "absent treatment."

#### DIFFERENTIAL DIAGNOSIS OF OBESITY

*To the Editor*—In a child who has obesity either of the hypothyroid or the hypopituitary type what tests can I use to determine which is the type? Are there any reliable tests to differ between the anterior and posterior lobe pituitary type? I should like an early reply as I wish to start treatment. Please omit name.

MD New York

**ANSWER**—Except for determination of the basal metabolic rate in hyperthyroidism there are no established laboratory tests to distinguish between the alleged types of obesity to which reference is made. There have been many experimental approaches to this problem most of which depend on testing the blood or urine for one of the hormones secreted by the anterior lobe of the pituitary gland. Until more certain and practical laboratory criteria are established the differentiation will have to remain on a dubious clinical basis.

#### AMYOTROPHIC LATERAL SCLEROSIS

*To the Editor*—I would appreciate knowing the latest form of treatment for amyotrophic lateral sclerosis.

CARL B. YOUNG MD Houston Texas

*To the Editor*—Please designate the latest therapeutic measures employed for amyotrophic lateral sclerosis. What are the etiologic factors known today in this disease? Please omit name and address.

MD Florida

**ANSWER**—Amyotrophic lateral sclerosis is probably a degenerative disease which attacks the anterior horn cells particularly of the cervical enlargement thus giving rise to atrophies in the upper extremities. It also involves the lateral tracts, causing spasticity and exaggerated reflexes in the lower extremities.

There has been no discovery of known value in the treatment of true amyotrophic lateral sclerosis. Strichnine in full doses may help to strengthen the weak muscles but it also tends to aggravate the spasticity. Aminocaproic acid which has some times proved helpful in muscular dystrophy has been disappointing but may be worthy of trial. About 15 Gm of this substance may be given two or three times a day.

There are no specific etiologic factors known for this disease. It must be remembered however that the symptom complex of amyotrophic lateral sclerosis may be caused by syphilis.

## BACTERIOSTATIC ASTRINGENT PREPARATION

To the Editor—For some time I have been prescribing the following

R Magnesium sulfate	3 ounces
Boric acid	2 ounces
Aluminum ammonium sulfate	1 ounce
Menthol	35 grains
Mix	

This I have prescribed for a vaginal douche one or two teaspoonfuls to a quart of water. I have often prescribed it for a wet or dry dressing. I have prescribed it for tired aching feet. Please advise if the formula has any antiseptic qualities as I have obtained some wonderful results from it. What is in it that gives such good results? M D Georgia

ANSWER—The combination is bacteriostatic, though not disinfectant. Its efficiency is chiefly due to the astringency of the alum accentuated by the production of exosmosis due to hypertonic magnesium sulfate solution. The menthol has, no doubt, a good deal to do with the immediate grateful cooling sensation resulting from this application.

## SAFE ANALGESICS

To the Editor—Is there a safe anodyne other than narcotic? I know that unpleasant sequelae have occurred after some of the barbiturates. Would you consider it wise to give these frequently for relief of pain?

M D Pennsylvania

ANSWER—Cure of the cause of pain rather than frequent administration of any analgesic is the goal of therapy. A constant pain due to an incurable condition should be relieved by section or destruction (e g, by alcohol) of the sensory nerve involved.

Acetylsalicylic acid is probably the safest and most generally useful analgesic. The action is enhanced by combination with a barbiturate, such as phenobarbital. If it produces excessive sweating, it may be combined with extract of hyoscyamus, as in this prescription:

R Extract of hyoscyamus	0.15 Gm
Phenobarbital	0.50 Gm
Acetylsalicylic acid	5.00 Gm
M Div into fifteen capsules	
Label One every two to four hours as required	

## DEXTROSE SOLUTION INTRAVENOUSLY

To the Editor—In the intravenous injection of dextrose what is the best strength to use? In a country practice without laboratory facilities or distilled water would it be proper to administer the stronger solutions as supplied by pharmaceutical firms, say 25 per cent and 50 per cent? Please omit name.

M D Pennsylvania

ANSWER—A 5 per cent solution of dextrose is the best strength to use, as it is approximately isotonic with the blood. If the patient is also in need of sodium chloride administration it is best to employ a solution of 2.5 per cent dextrose and 0.425 per cent sodium chloride. Such solutions are readily obtainable on the market in convenient containers suitable for administration in domestic practice. The stronger solutions should not be used unless osmotic effects such as those due to the hypertonicity of the solution are aimed at. For description see New and Nonofficial Remedies.

## ERGOTAMINE AND SCLERODERMA

To the Editor—Can you tell me whether ergotamine has been employed to any extent in the treatment of scleroderma and whether any case reports have been published? I should also like to obtain information concerning the pharmacology of this drug and its use in other conditions such as acrodynia. Please omit name.

M D Ohio

ANSWER—No case reports on the use of ergotamine in scleroderma seem available. Ergotamine is an active principle of ergot capable of exerting the effects characteristic of the drug including the peripheral vascular effects which may, among others, resemble those of acrodynia. It seems unlikely that ergotamine would be used in the therapy of this condition.

## LIMBER NECK AND POLIOMYELITIS

To the Editor—Your reply to a query regarding relationship of limber neck of fowls and poliomyelitis in the March 21 issue of THE JOURNAL is read with considerable interest. From personal study of forms of paralysis in fowls and swine I am very sure your answer is accurate. I do however premise to call your attention to the fact that poultry pathologists do not recognize the condition popularly termed limber neck as an entity. Rather it is a symptom manifested commonly in such conditions as emaciation due to intestinal worm and tuberculo and in fowl typhoid, leucosis, range paralysis and perhaps other diseases in addition to botulism.

CHARLES MURRAY Ames Iowa

Professor of Veterinary Research Iowa State College of Agriculture and Mechanic Arts

## Medical Examinations and Licensure

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AFRICA BOARD OF PEDIATRICS	Albany N. Y. June 10	Baltimore Md. and Cincinnati in November	Sec. Dr C. A. Aldrich	723 Elm St.
AMERICAN BOARD OF UROLOGY	Poston May 22 24	Sec. Dr Gilbert J. Thomas	1009 Nicollet Ave.	Minneapolis

## Missouri Reciprocity Report

Dr E. T. McLaughlin, State Health Commissioner, reports 8 physicians licensed by reciprocity at the meeting held in Jefferson City, Jan. 6, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Yr. with	Reciprocity
Loyola University School of Medicine	(1919)	Illinois	
State University of Iowa College of Medicine	(1934)	Iowa	
University of Kansas School of Medicine	(1930)	Ohio	
Louisville and Hospital Medical College	(1905)	Kentucky	

University of Louisville Medical Department  
St. Louis University School of Medicine  
Washington University School of Medicine  
Creighton University School of Medicine

(1905) Kentucky  
(1932) New York  
(1934) Illinois  
(1932) New Jersey

### Colorado January Report

Dr Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the practical examination given in Denver, Jan. 7, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Six physicians were licensed by endorsement. The following schools were represented:

	PASSED	Per Cent
Osteopath*		83
School	LICENSED BY ENDORSEMENT	Year of Grad.
Rush Medical College		(1915) Michigan
(1921) Illinois		
State University of Iowa College of Medicine		(1934) Iowa
University of Louisville School of Medicine		(1932) Kentucky
University of Oklahoma School of Medicine		(1931) Oklahoma
Jefferson Medical College of Philadelphia		(1900) Indiana

\* Licensed to practice medicine and surgery

## Book Notices

**Otosclerosis.** By Louis K. Guggenheim, M.D., F.A.C.S., Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine. Cloth. Price \$6. Pp. 212 with 127 illustrations. St. Louis: Louis K. Guggenheim, 1935.

The subject of otosclerosis continues to intrigue the interest of the otologist and of others as well who are concerned with the problems of the deafened. It is a disease particularly of the young and those in early adult life. The female at puberty and in the child bearing years is one common type of victim whose plight arouses the sympathy of those about her. Though it seldom leads to absolute deafness there is frequently enough impairment to interfere seriously with the happiness of the affected individual in social and industrial contacts. It is by no means a rare disease. Shambaugh and his associates in a study of deafness in members of the League for the Hard of Hearing estimate that 70 per cent suffered from otosclerosis with primary stapes fixation. The American Otological Society has been a leading force in this country in a campaign to solve the problems of this affliction. It has collected funds established a permanent records bureau, and financially aided investigations at various universities. As to etiology there is at present no agreement. One recent textbook mentions no less than ten different theories and while some of these are not mutually exclusive they vary widely enough. For instance rickets is thought by some to be a cause. Still others, while not admitting the rickets theory, think that it is due to a disturbance of calcium metabolism. Others feel that it is closely akin to osteitis fibrosa. Still others that it is closely related to Paget's disease. Wittmack is a prominent exponent of the notion that it is due to labyrinthine congestion and there are those who feel that the real cause is a fundamental underlying disturbance of the glands of internal secretion. It has been thought for a long time that, whatever the cause, a hereditary factor is present.

The author has taken for his thesis the idea that otosclerosis is hereditary and is a regression. His studies lead him to believe that the changes in otosclerosis manifest at puberty or later do not arise at this time but are due to changes in anlage presented early in the embryologic history of the man. He believes furthermore that the condition is a throwback so to speak, to ancestors of the human race far down the line of vertebral descent. He has devoted much time and thought to his thesis. Starting far back he undertakes a phylogenetic study of the labyrinth, beginning with the Cyclostomata. He then discusses the development of the human aural capsule from the earliest embryologic times. He has been fortunate enough to obtain a six weeks embryo the mother of which suffered from a classic form of otosclerosis. The sections obtained from the embryo are described in detail and present conditions that are highly suggestive. It is the author's belief that otosclerosis is

perhaps due to a throwback to ancestral forms in which the labyrinth contains no windows, oval or round. In those human beings containing certain genes there is an attempt on the part of nature to reproduce the primitive labyrinthine type. His argument is bolstered by the fact that in most instances of otosclerosis the chief areas of activity seem to be in the region of the labyrinth windows, particularly the oval one, in which rests the foot plate of the stapes. While few will admit that the author has proved his point beyond all shadow of a doubt, it may be said that an ingenious and daring attempt at explanation has been made. The book gives evidence of much thought and reading. The arguments are well marshaled. The prevailing theories are presented with an interesting appraisal of each. The reproductions of photomicrographs are unusually well done and those interested in otosclerosis will derive much information, pleasure and stimulation from a reading of this work.

**The Source of Infection in Puerperal Fever Due to Hemolytic Streptococci.** By Dora C. Colebrook. Medical Research Council Special Report Series No. 205. Paper. Price 1s 6d 1p 99. London: His Majesty's Stationery Office, 1935.

Puerperal sepsis remains a principal cause of maternal mortality despite the present general knowledge concerning antiseptics and asepsis and the use of improved technical methods. Although extensive epidemics of puerperal fever now occur infrequently, the sources and types of infection in sporadic cases are of deep interest and require careful study.

The hemolytic streptococcus has long been considered the chief etiologic agent of puerperal sepsis, the incidence varying from 25 to 90 per cent. Only in the past few years have different groups and subgroups of hemolytic cocci been isolated and recognition been taken of the fact that some members are not pathogenic for man. Thus the hemolytic streptococci that might be found in the genital tracts of normal parturient women may be entirely harmless and could not be considered the cause of puerperal sepsis.

Dr. Colebrook seeks to determine the source of infection in a large series of cases of puerperal fever due to hemolytic streptococci and carefully summarizes her observations, determinations and conclusions drawn from her three year study. She compares the strains of hemolytic streptococci isolated from cases of puerperal fever and the extragenital strains found in the patients and their contacts. The strains were identified by three methods of bacteriologic technique. The improved procedures are described. It was satisfactorily shown that the method of absorption of agglutinins can be relied on for the differentiation of stable serologic types of hemolytic streptococci involved in puerperal infection.

In a series of 121 puerperal strains isolated from cases of definite infection it was found that eighty-five reacted with one or another of eighteen of the serums that 85 per cent of these eighty-five strains belong to one of eleven types, and that 54 per cent belong to one of five types. Thus the majority of puerperal strains belong to a limited number of types, and these are the types usually found in diseases of the respiratory passages.

The source of infection of sixty-seven patients was investigated. A possible source was found in 76 per cent. Combined serologic and epidemiologic evidence pointed to the sources in these forty-eight patients. Six patients contracted their infection from their own extragenital strain, twenty-four from an attendant contact and nine from a strain found in a member of the household. Any of the three sources could have been the cause in the remaining nine cases. In a review of other work Dr. Colebrook states that an extragenital source was found in the patient or contact in 75 per cent of 197 consecutive patients having puerperal fever.

The results of recent research show that the hemolytic streptococcus responsible for puerperal infection can be differentiated from other hemolytic streptococci by serologic and biochemical tests that the organisms which cause puerperal fever are not found in the genital tract at the beginning of labor, and that the most important sources of such organisms are in the respiratory passages and in septic foci of the patient and her contacts. Acceptance of the facts so ably presented in Dr. Colebrook's book will do much in reducing the too high incidence of puerperal infection.



**Haemochromatosis** By J. H. Sheldon M.D. F.R.C.P. Hon. Physician to the Royal Hospital, Wolverhampton. Cloth. Price \$8.50. Pp. 382 with 40 illustrations. New York & London: Oxford University Press, 1935.

The material in this monograph formed the basis of the Bradshaw Lectures of 1934. In its present form it is not only a complete summary of the subject of hemochromatosis up to 1934 but is a well organized and carefully edited dissertation that should have permanent value as a text. Unlike most summaries the author has taken the privilege of indicating his own judgment on numerous conflicting issues and has offered a hypothesis that throws some light on the phenomena of hemochromatosis. The material is presented in a readable style. It is comprehensive yet simple and concise and reflects the author's intimate knowledge of the subject. A well selected bibliography of close to 600 references has been skilfully utilized in the organization of the text, and the discussions are convincingly illustrated. The view advanced by the author is that hemochromatosis should be classed as an inborn error of metabolism which concerns the inner metabolism of probably all the cells of the body (with the possible exception of the nervous tissue). The disturbance is expressed in two ways: by a disturbance in the metabolism of melanin (hemofuscin) and by the formation of iron containing pigment (hemosiderin) in nearly all the tissues. Neither appears to be peculiar to the disease. The exact nature of the metabolic error is unknown but the author envisages two possible methods of approach, which he modestly discusses in detail. While this phase of the material is no more than legitimate speculation, it is provocative and logical. The monograph is of interest not only to those specifically interested in the subject of hemochromatosis but to any one concerned with the cellular metabolism of metallic constituents. The book is a valuable addition to any medical library and should be of mutual interest to the clinician and the pathologist.

**Gefässerweiternde Stoffe der Gewebe** Von J. H. Gaddum Prof. der Pharmakologie am University College London. Eingeleitet von H. H. Dale Direktor des National Institute for Medical Research. London. Monographien zur Pharmakologie und experimentellen Therapie. Herausgegeben von Philipp Ellinger. Paper. Price 18 marks. Pp. 200. Leipzig: Georg Thieme, 1936.

More and more it is coming to be believed that stimulation of nerves and muscle is accomplished by secretions exuded by the endings of nerves. In an illuminating introductory chapter in Professor Gaddum's book Sir Henry Dale states: "The evidence is clear that whenever an impulse passes from an autonomic fiber to the cell of an autonomic ganglion acetylcholine is liberated at the synapse. The conception is this that acetylcholine acts as the carrier of each separate preganglionic stimulation, that it stimulates the ganglion cell and thus produces a single postganglionic stimulation, then that at once it disappears. The same conception applies with even greater force to the transmission of impulses from the somatic motor fibers to the end plates in striated voluntary muscle. Here again acetylcholine comes into play. The proof in the case of the muscle is not so conclusive as is that for transmission through the synapses of the ganglions; nevertheless such proof is accumulating rapidly. This topic is of such importance that Professor Gaddum finds it necessary to devote an entire chapter to it with attention not only to acetylcholine but also to sympathin. The evidence at hand makes it appear that sympathin is closely related chemically to epinephrine. In the preface of the book acknowledgment is made for the inspiration received from Sir Henry Dale with whom Professor Gaddum has been associated for several years and who originally was to have been a joint author. In accordance with the purposes of the series of monographs of which this is a member the evidence selected for discussion is that to which the judgment of the author attributes the greatest interest and importance."

The principal topics reviewed in the volume are histamine, acetylcholine, adenosine materials of unknown chemical constitution present in extracts of various tissues, the liberation of specific substances by stimulation of nerves and the liberation of active substances in other tissues. The last topic introduces the concluding section which bears on traumatic shock and the symptom complex of anaphylaxis.

The presentation of each topic is concise and orderly, somewhat after the manner of a compendium but with better style

than the usual compendium has to offer, a style distinctly superior to that encountered in most German medical writing, thus only small familiarity with German is required by the reader. The subject of histamine, for instance, is covered in the following order: (a) its chemical and physical properties, (b) its pharmacologic peculiarities, its action on the circulation, on the lymph on the heart, uterus and other organs, (c) its natural occurrence, its extraction and isolation, (d) its resorption, excretion and metabolism, (e) its physiologic significance.

The bibliography includes approximately 800 references, almost all of them mentioned in the text. The book is a well come addition to the literature on pharmacology.

**The Extra Pharmacopoeia of Martindale and Westcott** Volume II. Published by Direction of the Council of the Pharmaceutical Society of Great Britain. Twentieth edition. Cloth. Price 22s. 6d. Pp. 889. London: The Pharmaceutical Press, H. K. Lewis & Co. Ltd., 1935.

To call a book a gold mine may be unfair to the book when it is as full of priceless information as is the "Extra Pharmacopoeia," a book that is intended to reduce to order and to a manageable compass references to the outstanding original work and the notable advances throughout the whole field of therapeutics. The first volume of this edition is devoted mainly to treatment with drugs and chemicals and the second volume is concerned with matters of diagnosis, analysis and assay of medicinal products and diverse other subjects associated with medicine, chemistry and pharmacy that could not be included in the first volume. The first 300 pages give a wealth of analytic data of interest largely to pharmaceutical chemists. Then follows a brief practical treatise on clinical examinations of urine, blood, feces, stomach contents and cerebrospinal fluid. Under nutrition are discussed foods, vitamins and their estimation, water, milk, flour and bread analysis. Bacteriologic and clinical data with special reference to diseases occupy 120 closely printed pages of practical information, some of which it would be difficult to find elsewhere. Sterilization and disinfectants, chemotherapy and gas poisoning, radium and roentgen diagnosis and therapy, electrotherapy, actinotherapy and proprietary medicines are chapter headings that might serve to illustrate the great variety of material taken up in this volume. The two volumes of the Extra Pharmacopoeia constitute a reference library on matters medical and pharmaceutical that writers, teachers and practitioners who want to be well informed should not try to get along without.

**Allgemeine Röntgenkunde** Einführung in Studium und Praxis der medizinischen Röntgenologie. Von Dr. S. Glasscheib. Second edition of "Die Röntgentechnik in Diagnostik und Therapie." Paper. Price 18 marks. Pp. 502 with 304 illustrations. Vienna: Julius Springer, 1936.

When the first edition of Glasscheib's book came out it had a phenomenal success which was fully justified. For the first time an attempt had been made to give the fundamentals for the understanding of x-ray work from a diagnostic as well as a therapeutic point of view. The success of the book encouraged the author, when finishing the new edition, to widen the scope of the work. Glasscheib now gives his book the title "General Roentgenology." In fact, he has created a work corresponding to the textbooks of general surgery or pathology that have existed for a long time. With his book he provides a work which every physician who devotes himself to clinical x-ray work can use to advantage. The so-called interpretation of x-ray films can be successful only when the manner in which the films are taken is understood and the possibilities of interpretation in relationship to technic and clinical factors are balanced. The biologic fundamentals of the x-rays in living material are set forth and the physics of x-rays is converted from a rather dry and for the practitioner somewhat distant science into an interesting, living aspect of teaching. The material is abundant and it is astonishing with what disposition and exactness Glasscheib has solved his complicated task. The work is subdivided into three parts: (1) roentgen physics, (2) the use of x-rays in diagnostics, (3) the use of x-rays in therapeutics. Each of these parts is subdivided into numerous chapters. The partitions of the whole thing are so clear, the diction so distinct, that one is forced to admire the knowledge and the talent that this young author has submitted for the purpose of teaching. In this edition, the chapters concerning x-rays in



the medical and clinical methods as well as special x-ray pathology are entirely new. Till now, parts of these chapters have been found scattered in special works. Here for the first time they are described exactly and clearly arranged.

**The Foot** By Norman C. Lake, M.D., M.S., D.S., Senior Surgeon and Lecturer on Surgery, Charing Cross Hospital, London. Cloth. Price \$4.50. Pp. 330 with 95 illustrations. Baltimore: William Wood & Company, 1935.

This is written by a physician whose interest in the physiology and the pathology of the human foot is manifested in the enthusiastic presentation of the subject. The discussion begins with a review of the evolution of the foot and continues with a description of the anatomy and physiology. The author does not agree with Keith or with most orthopedic surgeons who hold that the normal arch of the foot is maintained by muscles, while ligaments serve as safeguards and come into use only when the muscular defense is broken down. Lake further argues that the human foot has gradually been growing more rigid through the process of evolution. He explains in part some of the developmental anomalies and particularly the common condition of painful flatfoot or chronic foot strain by further interpretations of this hypothesis. The book includes a brief statement about the various abnormalities of the foot injuries and infections and covers subjects which are ordinarily relegated to the chiropodist but which should be better understood by the specialist and the family doctor. The text is illustrated by diagrammatic sketches, roentgenograms and reproductions of photographs. The general practitioner as well as the orthopedic surgeon is constantly being appealed to for relief from painful conditions of the feet. This book contains information which should help them in treating these patients more intelligently and more scientifically. The major orthopedic procedures connected with the treatment of severe talipes were deliberately omitted. This book should be of interest and help to the chiropodist and the masseuse as well as to the physician.

**I and Me: A Study of the Self** By E. Graham Howe, M.B., B.S., D.P.M., Associate Physician, Institute of Medical Psychology, London. Cloth. Price 7s. 6d. Pp. 236 with 14 illustrations. London: Faber and Faber, Limited, 1935.

The author applies the principle of relativity to the study of life in general and of man in particular, decrying the fallacy of studying things-in-themselves and different qualities as absolutes. He points out that the scientist must recognize an inevitable dualism at every point. For instance, where fear and anxiety are part of the reality of life, the sense of safety is only to be found in accepting danger; and if we use our will power we soon discover something else, namely, that we have a wont power too. The author pleads for science as a method of correlating data obtained from the study of external reality, saying yes to both good and bad, yes to both sides of the balance, accepting the whole of reality as a matter of fact. The book is a philosophical study that will appeal more on a second reading than it will on the first, and the author's skillfully drawn paradoxes are aided by a number of formalistic drawings emphasizing the importance of the middle path and the falsity of fixed absolutes.

**Thérapeutique cardiovasculaire** Par le Docteur P. Schrumphf-Pierron. 1<sup>er</sup>aper. Price 30 francs. Pp. 246. Paris: J. Lefrancis & Cie, 1937.

The writer of this book is obviously not imbued with the critical scientific spirit that must be demanded of a medical teacher or writer in order that his opinion may carry weight. He obviously assumes the attitude of the so-called eclectic who presumes to make a selection of remedies from allopathic as well as 'homeopathic' and other authorities, and to use what seems best according to his judgment and experience. While Dr. Schrumphf-Pierron frequently indulges himself in flings at 'regular medicine' he does not impress one with any special knowledge of his irregular remedies which he deals us with unfortunately so liberal a hand that it would take more a lifetime of many a man to judge them scientifically. This book certainly cannot be recommended as a safe guide to a beginner in therapy. It is rather suitable as a museum piece of eclectic medication.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts. Compensability of Pneumonia**—The employee, in the course of his employment, assisted for about two and one-half hours in the grinding of an exceptionally dirty load of grain fodder. The inhalation of the resulting dust and other foreign particles caused him to cough violently and to expectorate a black substance. That evening he continued to cough, complained of his chest hurting, and expectorated blood. After several days of illness he died of pneumonia. After the industrial accident board had denied their claim for compensation, the district court gave judgment for the claimants. The employer's insurer then appealed to the court of civil appeals, Texas.

Plainly said the court a damage to the physical structure of the body need not necessarily be externally visible to come within the meaning of injury, as that term is used in the workmen's compensation act. Naturally, symptoms are depended on in large measure in cases of this character to prove injury to a hidden organ. There was violent coughing, spitting of blood and pains in his chest, almost immediately after the infliction of the alleged injury, and these facts, together with the medical testimony, amply supported the jury's finding that an injury was sustained. If that injury was undesignated and unexpected, had its origin in a risk connected with the employment and is shown to have flowed immediately and directly from that source as a rational consequence it is compensable. In this case the employee labored under unusual conditions. The fodder was the dirtiest that the witnesses had ever seen. There was a mild epidemic of pneumonia in the community. The employer could have but had not provided protective measures. The injury was unexpected and undesignated. It could be traced to a definite time, place and cause. There must of course be a causal connection between the injury and subsequent death of the employee for the latter to be compensable. Here the court said there was sufficient evidence of an injury to the lungs, followed immediately by symptoms indicating a predisposition to pneumonia, which in fact resulted in death occurring therefrom in just one week from the time of the alleged injury. The cause set in motion operated continuously through a sequence of events, each flowing naturally from one to the other, eventuating in death. The court therefore affirmed the judgment of the district court for the claimants.—*Maryland Casualty Co. v. Rogers (Texas), 86 S. W. (2d) 867*

**Malpractice. Fibrous Union Following Fracture of Hip**—The plaintiff, 59 years of age, injured his right hip in 1931 and the defendant, a physician, on the basis of a roentgenogram made a diagnosis of an impacted complete fracture of the surgical neck of the femur. The injured leg was temporarily immobilized with splints and sandbags and after the swelling had subsided a plaster cast was applied. About five months thereafter the cast and splints were removed. Continuing to have trouble with the hip for several years the plaintiff consulted another physician in 1933 whose roentgenologic examination disclosed that the shaft had slipped past the head of the femur for a distance of about two inches, resulting in only a fibrous union. The plaintiff thereafter sued the defendant and obtained judgment in the United States district court, district of Idaho, eastern division. The defendant then appealed to the United States circuit court of appeals, ninth circuit.

It was conceded apparently that the defendant's initial treatment was proper for an impacted fracture but it was contended that he was negligent in his diagnosis and was further negligent in not having taken a second roentgenogram in order to ascertain whether or not the bones were in apposition after the cast was applied. Five medical witnesses testified that the first roentgenogram showed the fracture to be impacted. One medical

witness for the plaintiff testified that, on the basis of the first roentgenogram and the plaintiff's inability to stand on the injured leg, the fracture was unimpacted and that the defective union was due partly to a failure to reduce the fracture by traction and partly to the premature use of the injured leg. Another witness for the plaintiff testified that the defective union might have been caused by either a failure to reduce the fracture or a slipping of the fragments after a proper reduction. The defendant testified that he did not take a second roentgenogram because his measurements showed the bones were in position at the time he placed the patient in the cast and that he made such additional examination and manipulation at that time as was necessary to ascertain that fact. There was no evidence that physicians in that locality were in the habit of taking more than one roentgenogram in a fracture case such as the one involved in this case, or of making any examination other than such as was made by the defendant. The treatment given the patient before the leg was placed in a cast was in accordance with the diagnosis and conceded to be correct for an impacted fracture. If, the court said, a physician has the knowledge and professional skill equal to the average in the locality where he is practicing and exercises that knowledge without negligence, he is not liable for a mistake or error in judgment. Said the court:

In view of the opinion of the large number of professional witnesses to the effect that this was unquestionably an impacted fracture and was so shown by the x-ray pictures taken at the time and in view of the fact that the opposing testimony of Dr. Rich merely goes to the expression of his opinion that the fracture was unimpacted and does not purport to show that there was negligence in diagnosing the fracture as an impacted one even if we assume as the jury may have believed and found that the fracture was not reduced it would still be true that we have nothing more in the case than an error of judgment and no proof that the appellant did not exercise such professional skill and care as were reasonably to be expected in that locality.

The court concluded, therefore, that the plaintiff could not recover having failed to establish that there was negligence in the initial treatment of the fractured leg and having failed to establish that the faulty union complained of was the result of any other act of negligence on the part of the defendant—*Moore v. Tremelling* 78 F. (2d) 821.

**Pharmacists Liability for Sale of Mineral Oil Contaminated with Formaldehyde**—The plaintiff purchased some mineral oil from the drug store owned by the pharmacist-defendant and gave a portion of it to his infant child. The infant became ill almost immediately and ten days later died of ileocolitis or inflammation of the bowel. The plaintiff as administrator of the estate of his deceased son, sued the pharmacist-defendant and the clerk who had dispensed the oil, contending that the oil was contaminated with formaldehyde. At the close of the evidence, the case was dismissed as to the clerk, but the jury returned a verdict against the pharmacist, who thereupon appealed to the Supreme Court of Minnesota.

In the opinion of the Supreme Court, there was sufficient evidence to justify an inference that some one connected with the pharmacy had carelessly permitted formaldehyde to get into the mineral oil that a quantity of it was sold to the plaintiff and administered to the child, and that the child died as the result thereof. The pharmacist contended, however, that the judgment in favor of the clerk was a conclusive bar to a judgment against him, arguing that the liability of the master is derivative and depends solely on the negligence of the servant. With this contention the court could not agree. Whatever might be the result if the pharmacist's liability depended solely on the act of his clerk, the court said, there was abundant evidence of responsibility aside from the sole act of sale. The real cause of death lay in the carelessness which resulted in formaldehyde being mixed with the oil. The record was silent as to how this occurred and certainly does not fix the blame on the clerk. Furthermore, *Mason v. Minn. St.* 1927, Sec. 5813 provides that—

Every proprietor or manager of a place where drugs are sold shall be responsible for the quality of all drugs, chemicals and medicines sold by him.

This section was not enacted to relieve pharmacists of any responsibilities but to afford additional protection to the public. The pharmacist's liability, therefore, is not predicated solely on the negligent act of the clerk but is imposed on him by his

responsibility for the quality of his drugs. The jury was justified by the plaintiff's testimony in finding that the quality of the oil had become dangerously impaired prior to the sale by the clerk. Had the same adulterated oil been sold in some way by an automatic vending machine instead of by the clerk, the pharmacist's responsibility under the statute would be quite clear. The court accordingly affirmed the judgment against the pharmacist—*Berry v. Daniels (Minn.)*, 263 N. W. 115.

## Society Proceedings

### COMING MEETINGS

- American Medical Association, Kansas City, Mo., May 11-15. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, Kansas City, Mo., May 11-12. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Association for the Study and Control of Rheumatic Diseases, Kansas City, Mo., May 11. Dr. Loring T. Swaim, 372 Marlboro St., Boston, Secretary.
- American Association for the Study of Goiter, Chicago, June 8-10. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Corresponding Secretary.
- American Association for the Study of Neoplastic Diseases, Baltimore, June 11-13. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Bronchoscopic Society, Detroit, May 27. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Swampscott, Mass., June 4-6. Dr. Fred D. Weidman, Medical Laboratories, University of Pennsylvania, Philadelphia, Secretary.
- American Gynecological Society, Absecon, N. J., May 25-27. Dr. Otto H. Schwarz, 630 S. Kingshighway Blvd., St. Louis, Secretary.
- American Heart Association, Kansas City, Mo., May 12. Dr. H. M. Marvin, 50 West 50th St., New York, Acting Executive Secretary.
- American Laryngological Association, Detroit, May 25-27. Dr. James A. Babbutt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Denver, May 18-20. Dr. C. Stewart Nash, 708 Medical Arts Building, Rochester, N. Y., Acting Secretary.
- American Neurological Association, Atlantic City, N. J., June 1-3. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 1-3. Dr. J. Milton Grissom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Milwaukee, May 18-21. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.
- American Otolological Society, Detroit, May 28-29. Dr. Thomas J. Harris, 104 E. 40th St., New York, Secretary.
- American Pediatric Society, Bolton Landing, N. Y., June 11-13. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiotherapy Association, Los Angeles, June 28-July 2. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctological Society, Kansas City, Mo., May 11-12. Dr. Curtice Rosser, Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, Kansas City, Mo., May 11-12. Dr. E. H. Shimmer, 1103 Grand Ave., Kansas City, Mo., Secretary.
- American Society for the Hard of Hearing, Boston, May 26-30. Miss Betty C. Wright, 1537 35th St. N.W., Washington, D. C., Secretary.
- American Society of Clinical Pathologists, Kansas City, Mo., May 6-10. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Urological Association, Boston, May 18-21. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for the Study of Allergy, Kansas City, Mo., May 11-12. Dr. Warren T. Vaughan, 808 Professional Bldg., Richmond, Va., Secretary.
- Association for the Study of Internal Secretions, Kansas City, Mo., May 11-12. Dr. E. Kost, Shelton 34, Michtelorena St., Santa Barbara, Calif., Secretary.
- California Medical Association, Coronado, May 25-28. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Conference of State and Provincial Health Authorities of North America, Vancouver, B. C., June 22-23. Dr. A. J. Chesley, State Department of Health, St. Paul, Minn., Secretary.
- Connecticut State Medical Society, Hartford, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.
- Illinois State Medical Society, Springfield, May 19-21. Dr. Harold M. Camp, 202 Lahl Building, Monmouth, Secretary.
- Maine Medical Association, Rungley, June 21-23. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Springfield, June 8-10. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Rochester, Minn., May 25-27. Miss Janet Doe, 2 E. 103d St., New York, Secretary.
- Medical Women's National Association, Kansas City, Mo., May 10-12. Dr. Laila A. Coston-Conner, 333 East 68th St., New York, Secretary.
- New Hampshire Medical Society, Manchester, May 26-27. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.
- New Jersey Medical Society of Atlantic City, June 2-4. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- North Dakota State Medical Association, Jamestown, May 17-19. Dr. Albert W. Skelsey, 20 1/2 Broadway, Fargo, Secretary.
- Rhode Island Medical Society, Providence, June 3-4. Dr. J. W. Leech, 167 Angell St., Providence, Secretary.
- Society of Surgeons of New Jersey, Orange, May 27. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
- Texas State Medical Association of Houston, May 25-28. Dr. Holman Taylor, 1404 W. El Paso St., Fort Worth, Secretary.
- West Virginia State Medical Association, Fairmont, June 8-10. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### Alabama Medical Association Journal, Montgomery

5 301 336 (March) 1936

- Radical Treatment of Rectal Stricture T B Hubbard Montgomery —p 301  
Surgical Treatment of Ulcers of Stomach and Duodenum J J Morgan, Gadsden —p 304  
Treatment of Prolapsus Uteri L F Turlington Birmingham —p 307  
Treatment of Pneumonia J H Meigs Anniston —p 309  
Alabama's Eighty-Nine Years of Medical Organization Brief History of the Association D L Cannon Montgomery —p 313

### American Journal of Medical Sciences, Philadelphia

191 305 452 (March) 1936

- Pneumococcus Type III Pneumonia Analysis of Five Hundred Cases R L Cecil N Plummer and M McCall New York —p 305  
Studies of Vitamin C Excretion and Saturation J B Youmans M H Corlette J H Akeroyd and Helen Frank Nashville Tenn —p 319  
Clinical Observations on Pulmonary Blood Flow in Sclerosis and Other Fibrotic Conditions of Lungs H R Miller New York —p 334  
Mumps Orchitis A Stengel Jr Philadelphia —p 340  
Routine Diagnostic Procedure for the Patient Who Enters the Hospital in Coma P Solomon and C D Aring Boston —p 357  
Paget's Disease (Osteitis Deformans) Analysis of One Hundred and Sixteen Cases A B Gutman and H Kasabach New York —p 361  
Previously Undescribed Granule Within Lymphocyte E A Gall Boston —p 380  
Bartonella Canis Infection in Relation to Secondary Anemia and Associated Underlying Lesions O L Munch Philadelphia —p 388  
\*Presence of Intrinsic Factor of Castle in Gastric Juice of Patients with Pernicious Anemia S M Goldhamer Ann Arbor Mich —p 405  
\*Treatment of Coronary Artery Disease by Intravenous Injections of Hypertonic Saline Solution S C Feinberg New York —p 410  
Cardiomegalia Glycogenica Circumscripta L E Finkelstein Brooklyn —p 415

**Intrinsic Factor in Gastric Juice of Pernicious Anemia**—Goldhamer points out that, while the hypothesis of Castle, Townsend and Heath is of the greatest importance, it does not explain adequately (1) the characteristic spontaneous remissions that occur in pernicious anemia (2) why patients in relapse have variable red blood cell counts, and (3) why those patients with pernicious anemia who apparently have no "intrinsic" factor in their gastric juice are able to produce at least some mature red blood cells despite the specific conclusion that the intrinsic factor must be present in order to accomplish this. In an attempt to explain some of these questions, experiments were performed with gastric juice obtained from patients with pernicious anemia in relapse. The patients selected were proved to have pernicious anemia by their history, physical appearances and laboratory procedures. The red blood cell counts were made on a Neubauer-Levy counting chamber. The hemoglobin was calculated in a Sahli hemoglobinometer according to the recently modified method of Osgood and Haskins. The reticulocyte counts were made on brilliant cresyl blue stained coverslip preparations and on each occasion 1000 red blood cells were counted. The author found that the intrinsic factor of Castle is present in the gastric juice of patients with pernicious anemia in relapse. The deficiency of the gastric secretion in pernicious anemia appears to be quantitative rather than qualitative. The red blood cell count in relapse, falls to a level determined by the amount of intrinsic factor which the patient is able to secrete in his gastric juice. Apparently erythropoiesis depends in part at least on the action of the intrinsic factor and the rate of red blood cell formation is related to the amount of the intrinsic factor produced. Spontaneous remissions still remain in the realm of speculation.

**Treatment of Coronary Disease by Saline Injections**—Three years ago, Feinberg gave a patient having arteriosclerotic closure of the leg vessels and coronary disease intrave-

nous therapy accidentally before a cardiac examination was made. Three injections of 5 per cent sodium chloride solution of 300 cc each had been given to the patient before the diagnosis was known. During the following three years of this treatment he had only one episode of angina. At the present time he receives a weekly injection of 300 cc of a 5 per cent solution of sodium chloride. Today he can walk any distance without symptoms. During this period fifteen other patients with combined arteriosclerotic closure of leg vessels and coronary artery disease have been treated with intravenous injections of hypertonic solution of sodium chloride. No untoward accident has occurred. The results in these fifteen cases appeared so promising that six intractable cases of angina pectoris due to coronary artery disease without arterial involvement of the extremities were selected for special study. The group consisted of five cases of angina pectoris following coronary artery thrombosis and one case of coronary sclerosis in a diabetic patient. These patients had had coronary artery disease for at least six months and had not improved under the ordinary course of treatment. None of the six patients could walk one block without being stopped by precordial pain or dyspnea. The initial dose was 100 cc of a sterile 5 per cent sodium chloride solution. Subsequent doses were increased by 50 cc weekly up to a maximum of 250 cc. Injections were given three times a week. If precordial pain occurred during or immediately following the increased intravenous injection it was evident that the heart was not ready for it. The author continued the therapy with the previous dose for a period of three weeks. The increased dose was then retried and was in every case successful. A graduated 300 cc buret was used and the solution was given intravenously by gravity. The buret was about 3½ feet above the patient, who was lying horizontally. Patients were not hospitalized and came to the clinic unattended. These patients did not receive any drugs or other treatment after the intravenous injections were begun. Striking improvement occurred in all evinced by definite and continuous clinical improvement. No claim is made that the arteriosclerotic process responsible for this disease is arrested. The treatment was employed in an attempt to increase the collateral circulation. The intravenous administration probably favors the development of collateral circulation through the finer ramifications of the coronary system. In selecting the first cases care was taken to avoid those that showed nephritis, cardiac decompensation, cardiac arrhythmia and arterial hypertension over 180 mm of mercury. The hypothesis is presented that the clinical improvement may be due to the fact that the treatment encourages a more rapid development of collateral circulation in the wall of the heart.

### American Journal of Orthopsychiatry, Menasha, Wis

6 1 182 (Jan) 1936

- Use of Rols Test as an Indicator of Mental Confusion I S Wile and Rose Davis New York —p 1  
Psy Techniques in Child Analysis E J S New York —p 17  
Uses of Books for Psychotherapy with Children C Bradley and Elizabeth S Bosquet East Providence R I —p 23  
Rorschach Test Replies and Results in One Hundred Normal Adults of Average Intelligence Quotient G E Gardner Waverley Mass —p 32  
Psychologic Approach to the Problems of Psychiatry J D M Griffin Providence R I —p 61  
Correlations of Intelligence Quotients of Porteus Maze and Binet-Simon Tests in Two Hundred Neuropsychiatric Patients J J Michael Boston and Margaret E Schilling Ann Arbor Mich —p 71  
Significance of Juvenile Neuropathic Traits Consideration of Their Role in Etiology of Functional Cardiovascular and Gastro-Intestinal Disorders and Exophthalmic Goiter A W Hackfield Seattle —p 7  
Factors Affecting Success of Child Guidance Clinic Treatment Ruth M Hubbard and Christine F Adams Rochester N Y —p 81  
Childhood Manifestations and Adult Psychoses A S Edwards and I D Langley Athens Ga —p 103  
Types and Incidence of Behavior Problems in Relation to Cultural Background Marion R Meyers and Hazel M Cushing Rochester, N Y —p 110  
The Family as a Builder of Personality I G Lowrey New York —p 117  
Pituitary Disturbances in Behavior Problems M Molitch and S Polakoff Jamesburg N J —p 12  
Approach to Measurement of Mental Health S A F Chant and C R Myers Toronto —p 134  
Functions and Limitations of Social Worker in Psychiatric Unit in Pediatric Clinic Outpatient Department Fannie E Teller Philadelphia —p 141

## Am J Syphilis, Gonorrhea and Ven Dis, St Louis

20 115-230 (March) 1936

- Syphilitic Pseudobulbar Palsy with Compulsive Weeping L J Karnosh and W H Connor Cleveland—p 115  
 Bismuth by Mouth in Treatment of Syphilis Preliminary Experimental Study with Bismuth Chloride (Bismutrate) in Rabbit Syphilis C R Rein and M B Sulzberger New York—p 124  
 \*Oral Administration of Bismuth in Treatment of Experimental Rabbit Syphilis J E Kemp and P D Rosahn Chicago—p 131  
 Syphilis of Spinal Cord N W Winkelman Philadelphia—p 146

**Bismuth by Mouth in Treatment of Experimental Syphilis**—In a study of the oral administration of bismuth in the treatment of early syphilis in the rabbit, Kemp and Rosahn found that 1 Twenty-four daily doses each of 20 mg of metallic bismuth as contained in a complex amino acid bismuth salt (bismutrate) per kilogram failed to alter materially the course of early syphilis in five of the six animals treated. Two of the four animals which were given twenty-four doses of 50 mg per kilogram developed generalized lesions during treatment or a short time after it ended. The two remaining animals were still negative forty-one days after the experiment ended. The one animal that died after the sixth treatment still harbored actively motile spirochetes in the originally infected testicle. 2 Six animals fed twenty-four doses each of 20 mg of metallic bismuth per kilogram as contained in bismuth sodium iron citrate experienced no change in the course of the infection, developing metastatic lesions in the testicle opposite to that inoculated in every instance. 3 Seven of eight rabbits fed potassium bismuth tartrate in doses of 20 mg per kilogram still showed actively motile spirochetes in the inoculated testicle after the twenty-fourth treatment. Seven of the eight also developed metastatic lesions in the opposite testicle during or within twenty days after the treatment was terminated. 4 The results of the Kolmer blood Wassermann and Kahn tests, performed according to a technic modified for rabbits gave no index of the course of the infection during treatment. 5 The study supports the observation of Serefis that it is impossible to use the syphilitic rabbit in determining the value of bismuth preparations intended for oral administration in the treatment of human syphilis.

## Anatomical Record, Philadelphia

64 277-412 (Feb 25) 1936

- Transplantation of Hypophysis Cerebri to Anterior Chamber of Eye in Albino Rats C J Bunton Boston—p 277  
 Experimental Studies on Vagus and Spinal Accessory Nerves in Cat F S DuBois and J O Toley University Ala—p 285  
 Observations on Ovulation in Rabbit J E Markee and J C Ilinsky Palo Alto Calif—p 309  
 Extrusive Growth and Attrition of Incisors in Albino and Hybrid Rattus Norvegicus (Erleben) A R Shadle L G Wagner and T Jacobs Buffalo—p 321  
 Studies in Wave Mechanics of Muscle III Anastomotic Fibers Central Nuclei and Intercalated Disks in Cross Striated Skeletal Muscles of Guinea Pig (Cavia Cobaya) E J Carey Milwaukee—p 327  
 Id VI Areas of Cohnheim Are Transverse Sections of Cross Striations of Striated Muscle Fiber E J Carey and W Zeit Milwaukee—p 343  
 Method for Staining Pepsinogen Granules in Gastric Glands D J Bowie Montreal—p 357  
 \*Orientation of Venous Valves in Relation to Body Surfaces E A Edwards Boston—p 369  
 Adaptation of Transparent Chamber Technic to Ear of Dog R L Moore Philadelphia—p 387  
 Origin of Notochord in Alligator Mississippiensis A M Reese Morgantown W Va—p 405  
 Example of Thoracopagus Trirachius in Mouse C V Green Bar Harbor Maine—p 409

**Orientation of Venous Valves in Relation to Body Surfaces**—Edwards describes a seemingly constant orientation of the valves of veins of the extremities. The vein at the site of a valve is elliptic in cross section the major axis of the ellipse being parallel to the skin or its tangent. Within the vein at the site of the valve the two cusps arise from the long curves of the ellipse so that the aperture between their free margins is also parallel to the overlying skin. The advantage of this arrangement is that the compression transmitted to the veins by overlying structures produces secure apposition of the cusps to each other and thereby ensures the competence of the valve. The demonstration of the relationship of venous valves to the overlying skin is based on anatomic dissections and on roentgen studies of the living subject. Presumably a

similar relationship exists between venous valves and adjacent surface planes in the interior of the body. Actual observation, however, has been extended only to one fairly constant valve in the external iliac vein, in which the cusps are definitely oriented in a plane parallel to the parietal peritoneum.

## Archives of Dermatology and Syphilology, Chicago

33 413-604 (March) 1936

- \*Ten Years Experience in Treatment of Lupus Erythematosus with Gold Compounds C S Wright Philadelphia—p 413  
 Etiology of Lupus Erythematosus Occurrence in the Negro C J Cummer Cleveland—p 434  
 Measurements of Depth Dose for Roentgen Therapy Used in Dermatologic Practice G C Andrews and C B Braestrup, New York—p 446  
 LXXXII Pityrosporum Ovale (Bottle Bacillus of Unna Spore of Malassez) Cultivation and Possible Role in Seborrheic Dermatitis M Moore R L Kile M F Engman Jr and M F Engman St Louis—p 457  
 \*Granuloma Annulare Report of Unusual Cases with Comment on Histology of Disease M H Goodman and L W Ketron Baltimore—p 473  
 \*Cutaneous Tags of Neck H J Templeton Oakland Calif—p 495  
 Cicatrizing Morphea with Ankylosing Arthritis and Osteoblastic Change Report of Case S Crawford Pittsburgh—p 506  
 Effect of Hyperpyrexia in Treatment of Chronic Recurrent Dermatoses Clinical and Biochemical Studies with Especial Reference to Lipids and Lactic Acid Preliminary Report I Rosen H Rosenfeld and Frances Krasnow New York—p 518

**Treatment of Lupus Erythematosus with Gold Compounds**—Wright discusses the cases of seventy-six patients with lupus erythematosus, for whom the outlook was hopeless who were treated during a period of ten years with gold compounds chiefly with gold and sodium thiosulfate. Twenty-eight patients are regarded as cured, twenty-six were almost cured or were greatly improved, thirteen were improved moderately or slightly and nine failed to respond favorably to the treatment. Of the patients regarded as cured two have been well with no relapse for seven years, two for six years, two for five years and three for four years. The amount of gold and sodium thiosulfate required for cure varied from a minimum of 12 mg in one patient to a maximum of 2750 mg in another. Thirteen patients suffered one or more relapses after being partially or entirely free from lesions. In some patients the lesions cleared again following further treatment with the drug, and some were discouraged and refused further therapy. Nineteen of the patients suffered a reaction of one type or another from the gold. The commonest was a scarlatiniform dermatitis, which occurred in eight cases. No fatality occurred in the series except in one case in which dissemination of the eruption and death occurred following the use of a foreign preparation of gold. The safety of administering gold compounds has been greatly enhanced by a better understanding of dosage and of the warning signs of intolerance, which lead the physician to take measures to prevent serious accidents. It is the author's distinct impression that the percentage of cure would be even higher with modern therapy if entire cooperation by the patient could be achieved, for certainly in some cases improvement could have become cure by additional therapy.

**Annular Granuloma**—Goodman and Ketron report two cases of annular granuloma which show, besides typical lesions those of a large circinate type resembling the lesions of toxic erythemas. A detailed study of the histopathologic character of the disease, based on a total of twelve cases, is presented showing the various gradations from early changes as illustrated in the erythematous manifestations to those found in the later stages present in the more characteristic lesions. From their studies they believe that annular granuloma presents a characteristic histologic picture, particularly in the early stages in which the first changes appear to be a granular degeneration of the connective tissue, either diffuse or localized in more sharply circumscribed areas. This is followed by a cellular infiltrate of large mononuclear cells of the macrophage type which with connective tissue cells, tend to arrange themselves between the partially degenerated fibers or around the edges of circumscribed necrotic zones in a characteristic manner. Although there was a considerable perivascular inflammatory reaction present no marked occlusive changes were found in the blood vessels, and they show no particular relationship to either the early or the later necrotic changes in the connective tissue. Polymorphonuclear neutrophilic leukocytes, although occasion

ally found, are strikingly absent in all stages of the disease. Occasionally plasma cells and eosinophils are encountered. In the later stages, annular granuloma resembles histologically the juxta articular and rheumatoid nodules in certain cases except with respect to the vascular changes found in the latter.

**Cutaneous Tags of the Neck**—Templeton describes lesions that begin as tiny flesh colored papules ranging in size from a pinpoint to a pinhead. They occur almost invariably on the necks of middle-aged women, being most common on the lateral and anterior aspects, occasionally appearing on the chest. They vary in number from a few to hundreds. While most of them remain as papules about a millimeter in diameter, a number grow to the height of 1 or 2 mm and exist as pedunculated filiform tags. In general they retain the normal color of the skin, but a few become slightly darker. They do not tend to grow to the size attained by the tumors seen in cases of Recklinghausen's disease. As it has been suggested that this disorder might be related to Recklinghausen's disease he examined many patients with this disorder, without finding a single example of neurofibromatosis of the trunk. Microscopic observations demonstrated that the tags are not tumors of fibrous tissue origin. Moreover, the negative results with the Van Gieson stain militate against their arising from nerve tissue and constituting a sign of Recklinghausen's disease. Cutaneous tags of the neck need to be differentiated from digitate warts and molluscum fibrosum, histologically, they show a relatively simple outgrowth or excrescence of epidermis and corium while the lesions of molluscum fibrosum show a typical growth of neurofibromatous tissue in the corium. The author has found that the best treatment is to destroy each lesion with a very fine electrodesiccating spark. It is his belief that they constitute an entity apart from warts and fibromas and he suggests the name cutaneous tags of the neck.

### Delaware State Medical Journal, Wilmington

S 17 36 (Feb.) 1936

Infections of Upper Urinary Tract J C Birdsall Philadelphia—p 17  
Urology and the Child B S Vallett Wilmington—p 26

### Journal of Allergy, St. Louis

7 203 318 (March) 1936

Gastric Acidity and Acid Therapy in Allergy Mary Loveless New York—p 203  
Aryok Its Importance in Clinical Allergy H C Wagner and F M Rackemann Boston—p 224  
Fungi Found in Pillows Mattresses and Furniture N F Conant H C Wagner and F M Rackemann Boston—p 234  
Influence of Various Drugs on Allergic Reactions L Tuft and M L Brodsky Philadelphia—p 238  
\*Immunologic Aspect of Tobacco in Thrombo-Angiitis Obliterans and Coronary Artery Disease A Trasoff G Blumstein and M Marks Philadelphia—p 250

**Tobacco, Thrombo-Angiitis Obliterans and Coronary Artery Disease**—The studies of Trasoff and his associates do not justify the contention that hypersensitiveness of the vascular system to tobacco is the mechanism in thrombo-angiitis obliterans and coronary artery disease. They have frequently noticed direct relationship between vascular crises and smoking whether symptoms occurred in the lower extremities or in the coronary system. Three patients with thrombo-angiitis obliterans and four with coronary disease volunteered the information that smoking initiated pain. Definite electrocardiographic changes were demonstrated during the process of smoking in a few patients. On a pharmacologic basis only tobacco or its derivatives react directly on the sympathetic nervous system causing a vasoconstriction which is manifested as an increase in blood pressure and pulse rate with a lowering of the surface temperature of the skin. Nicotine may not be the element at fault and there are still many toxic substances in tobacco which cannot be eliminated definitely. The authors state that while their series is relatively small the results are uniform. The only group in which the percentage of positive skin tests was comparatively high was the allergic. It is known however that many nonspecific reactions are frequently obtained in such individuals. Of sixty-three unselected asthmatic children from the ages of 3 to 12 years whom Chobot tested to various tobacco extracts, only six gave negative skin tests. Tobacco apparently was not an etiologic factor in their asthma. The incidence of crises in which tobacco is a proved

atopen is not very great. According to Brown, tobacco accounts for 1 per cent in the nosology of his asthmatic patients, while in the authors' experience it amounts to less than 1 per cent. The failure to demonstrate reagins for tobacco on passive transfer tests in all patients except one, who reacted to tobacco, also argues against its significance in allergy. Of the hundreds of allergic patients whom they have studied they do not recollect any with thrombo-angiitis and no greater proportion of coronary disease than one ordinarily meets among the non-allergic persons about the fifth decade of life. There is no essential difference in skin reactivity to tobacco between the normal smokers and nonsmokers.

### New England Journal of Medicine, Boston

214 501 562 (March 12) 1936

Malignancy of the Breast H G Jarvis Hartford Conn—p 501  
Results in Mammary Carcinoma at the Elliott Hospital G C Wilkins and G F Dwinell Manchester N H—p 503  
Morphine and Intestinal Activity F F Yonkman Boston J M Hiebert New York and H Singh Boston—p 507  
The Management of Gonorrhea IV Treatment of Gonorrhea in the Male The Neisserian Medical Society of Massachusetts—p 527  
Review of Cardiac Deaths in Twelve Hundred and Forty Five Medical Examiners Cases That Have Come to Autopsy in the Massachusetts State Hospitals for Mental Diseases Anna M Allen New York—p 533  
Report of Perforation of Uterus with Protrusion of Appendix Through the Hirtus I Djerf Fitchburg Mass—p 534

### Northwest Medicine, Seattle

35 79 118 (March) 1936

Common Forms of Heart Disease Their Recognition and Treatment W H Holmes Chicago—p 79  
\*Diuretics in Treatment of Cardiac Edema J E Wood Jr University Va—p 84  
Intravenous Sacrose as Diuretic J G Strohm and S B Osgood Portland Ore—p 89  
Corium Its Value in Treatment of Coronary Disease and Cardiovascular Disturbances J L Brower and S Korry New York—p 89  
Method of Retaining Soft Rubber Catheter in the Male Urethra E M Bevis Tonasket Wash—p 92  
Significance of Itching in Obstructive Jaundice D Metheny Seattle—p 93  
Causes and Treatment of Urinary Retention P H Nitschke Portland Ore—p 95  
Hematuria W I Ross Jr Yakima Wash—p 100  
Carcinoid and Carcinoma of Appendix M S Rosenblatt and T D Robertson Portland Ore—p 103

**Diuretics in Treatment of Cardiac Edema**—Wood states that rest in bed proper digitalization and restriction of fluid intake will produce loss of edematous fluid in many cases. More dramatic improvement has occurred in patients with auricular fibrillation though patients having congestive heart failure with normal rhythm may benefit markedly from full digitalization. In patients with cardiac edema quite satisfactory diuresis not infrequently accompanies rest in bed alone. A period of observation during rest and digitalization is necessary. The author's study in diuresis attempts to set forth his experience with patients in whom frequently it has been expedient to administer certain drugs rather than adhere to experimental uniformity. During the actual period of marked diuresis following drug administration the fluid intake should be temporarily increased. Rigidity in the limitation of water is unwise in this respect and elasticity would seem a safer and more comfortable policy for the patient. Instances of temporary psychosis following rapid dehydration are frequent enough to draw attention. Unfavorable body changes may follow too rapid dehydration and whereas no conclusive data are available at present an attempt should be made to meet the drive of excessive water output with a somewhat increased intake. Ordinarily only the specific diuretics, particularly those used intravenously cause single drive or tremendous urinary output. Generally diuresis following rest and digitalis comes on and fades gradually and it would seem that adjustment to dehydration would therefore occur with less disturbance. For this and other reasons digitalis and fluid restriction are tried first in the treatment of cardiac edema. However, these measures while sufficient for some, may be temporary and incomplete in many patients. Numerous substances have been recommended for their diuretic effect but the author's discussion includes only the xanthine and mercurial diuretics and their combined action with certain inorganic salts. Xanthine diuretics should be tried after digitalization and before



turning to the mercurial drugs. Noteworthy of the xanthines is their better action in patients with hypertensive and arteriosclerotic heart disease. They are less effective in rheumatic heart disease. Presumably the xanthines primarily increase filtration, while the mercurial diuretics decrease reabsorption. The value of diuretics in the treatment of cardiac failure need not be questioned. Generally speaking patients with hypertensive and arteriosclerotic heart disease respond best to diuretic drugs. Should rest, fluid restriction, diet and adequate digitalization fail in the treatment of cardiac edema, the xanthine and mercurial diuretics should be tried preferably in the order mentioned. Combination of these drugs with certain salts and with one another may promote diuresis. The diuretic drugs should not be used as a last resort, as edema may increase cardiac work and impair cardiac efficiency, and the early use of suitable diuretic drugs may therefore have a double advantage.

### Ohio State Medical Journal, Columbus

32 193 288 (March 1) 1936

- Some Undesirable Effects from Prolonged Use of Various Barbiturates C W Stone Cleveland—p 209  
Headache of Nasal Origin W E Sauer St Louis—p 212  
\*Fusospirochetal Lung Infections in Children. Report of Case in Infant of Fourteen Months W B Taggart Dayton—p 218  
The Management of Patients with Hypertension H C King Lake wood—p 220  
Nephrophtosis P G Smith and G F McKim Cincinnati—p 223  
Importance of Recognition of Serum Disease M B Cohen Cleveland—p 225  
Sarcoma of Uterus A H Potter Springfield—p 227  
Hysterectomy Clinical and Statistical Study R L Faulkner Cleveland—p 229  
Surgical Procedure for Relief of Pain H E LeFever Columbus—p 234  
A Newly Discovered Cause of Asthma J Biederman Cincinnati—p 236  
A Case Record Presenting Clinical Problems Pain Across Kidneys Followed by Weakness and Pain in Right Chest H L Reinhart and G M Curtis Columbus—p 237

**Fusospirochetal Lung Infections in Children**—Taggart presents an account of fusospirochetal pulmonary infection in a white male infant 14 months of age. The original infection had its beginning in the form of a gingivitis which led him to assume that the lung involvement was an aspiration phenomenon. The patient has been irregularly followed for a year and a half during which time the process has gradually improved and his growth and weight gain have been uninterrupted in spite of the added insult of attacks of grip and measles. Because of the proximity of some of the abscess cavities to the pleural surface surgical intervention was considered inadvisable. Bismuth preparations were decided on because of the child's evident low systemic reserve the evidence of an extreme degree of cloudy swelling of the liver and unusual demands on the hematopoietic system. Arsenical acetarsone was employed for about ten days without any apparent remarkable change in an already improved condition.

### Science, New York

83 245 270 (March 13) 1936

- Child Development and the Interpretation of Behavior J E Anderson Minneapolis—p 245  
Cortical Excitatory State and Variability in Human Brain Rhythms H H Jasper Providence R I—p 259  
Influence of Hyperpnea and of Variations in the Oxygen Tension and Carbon Dioxide Tension of Inspired Air on Word Associations E Celloh and S H Kraines Chicago—p 266  
\*Influence of Adrenal Glands on Calcium Metabolism I Schour and J M Rogoff Chicago—p 267  
Anopheles Experimentally Infected with Malaria Plasmodia J S Simons Ancon C Z—p 264  
Device for the Motor Conditioning of Small Animals W J Brogden and E Culler Urbana Ill—p 269  
Aid in Color Blindness T Ross Seattle—p 270

**Influence of Adrenals on Calcium Metabolism**—Schour and Rogoff state that the occurrence of globular predentin in adrenalectomized rats as in animals that were subjected to the action of parathyroid extract confirms the observation that adrenal insufficiency is associated with disturbances in calcium metabolism. It also lends support to the suggestion of a functional interrelationship between the adrenals and the parathyroids. It seems possible that the disturbances in calcium metabolism which lead to the changes in the dentin in adrenalectomized animals may be the result of functional distur-

bances in the parathyroids. Although evidence favors the probability that the adrenal cortex is primarily involved, the possible relation of the medulla has not been excluded in these experiments.

### Southern Medical Journal, Birmingham, Ala

29 221 338 (March) 1936

- Radiation Therapy in Cancer of Mouth Pharynx and Larynx J M Martin Dallas Texas—p 221  
Role of Radiation Therapy in Treatment of Inoperable Deep Seated Abdominal Malignancies Report of Case of Adenocarcinoma of Stomach C A Waters Baltimore—p 228  
Carcinoma of Skin in Its Early Manifestations Correlation of Clinical and Microscopic Observations with Hypothesis of Etiology in Somatic Mutation R L Sutton Jr Kansas City Mo—p 235  
African Sleeping Sickness Clinical Study E R Kellersberger Bihanga Congo Belge Africa—p 239  
Limitations of Intravenous Urography T D Moore Memphis Tenn—p 242  
Treatment of Traumatic Arteriovenous Aneurysms J M Mason Birmingham Ala R M Pool Fairfield Ala and J P Collier Tuscaloosa Ala—p 248  
\*Wandering Bullet in Spinal Canal Report of Case C Pilcher Nashville Tenn—p 257  
\*Osteochondritis Dissecans as Related to Trauma R V Funsten and P Kinser University Va—p 262  
Repair of Old Muscle Tendon Avulsions C F Sherwin St Louis—p 266  
Hyperplasia of Endometrium Study of Endometrium After Treatment E C Hamblen and W L Thomas Jr Durham N C—p 269  
Evaluation of Radiotherapy for Carcinoma of Uterus After Fifteen Years Experience at the Woman's Hospital G G Ward New York—p 282  
Induction of Labor by Artificial Rupture of Membranes Without Quinine Comparison with Several Methods J W Reddoch New Orleans—p 289  
Intracellular Parasitism and Cytotropism of Viruses E W Good pasture Nashville Tenn—p 297  
Epidemiologic Principles L L Lumsden New Orleans—p 303  
Deficiency Polyneuritis H M Winans and E M Perry Dallas Texas—p 309  
The Stomach and Anemias H E Murry Texarkana Ark—p 312  
Purpura in Children C M Pounders Oklahoma City—p 317  
Expulsive Choroidal Hemorrhage Complicating Cataract Extraction A O Pfingst Louisville Ky—p 323  
Tracheobronchial Suction Tube W B McWhorter Anderson S C—p 328  
Fracture of Shaft of Femur H G Hill Memphis Tenn—p 328  
Pyloric Stricture Following Ingestion of Muriatic Acid J M Arena Durham N C—p 331

**Wandering Bullet in Spinal Canal**—In the case reported by Pilcher the bullet entered the spinal canal from the anterior side, reaching the free space in the canal posterior to the cord or cauda equina without having done much damage to these structures or to the bones of the vertebral column. The question arises as to whether the injuries to the nerve were due to the bullet or whether they resulted from compression of the nerves by a large hematoma lying anterior to the spine. The only analogous case found in the literature is that reported by Fergor, whose patient had a bullet in the spinal canal at the upper lumbar level without any neurologic symptoms. Regardless of whether the bullet was the direct cause of the nerve injury in the present case, it is certain that it would sooner or later have caused trouble and that its removal was indicated. The bullet in the present case is known to have moved freely both up and down the spinal canal and its position could be changed at will by altering the patient's position. It seems likely that it was pushed ahead of the exploratory catheter at the time of the first spinal exploration. The case serves as a warning that the exact position of foreign bodies thought to be in the spinal canal should be determined immediately before the exploration for their removal.

**Osteochondritis Dissecans as Related to Trauma**—In Funsten and Kinser's series of twenty-three cases of osteochondritis dissecans seventeen gave a definite history of trauma to the involved joints. One of the remaining six patients spent many hours daily working on his knees. One case was associated with rupture of the internal semilunar cartilage and, following the removal of the cartilage and osteochondilaginous body there was entire freedom from symptoms in four weeks. The classic case of osteochondritis dissecans shows on roentgen examination involvement of the inner condyle of the femur. The lesion was bilateral in three of the reported cases in the patella head of the femur and acetabulum. A case with osteochondritis dissecans of the carpal scaphoid and another of the semilunar are reported.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

1 143 194 (Jan 25) 1936

- Silicates of Magnesium N Mutch—p 143  
Relation of Ovarian Cycle to Endocrinology N M Fallner—p 149  
Removal of Tonsils by Electrical Currents of High Frequency A Eidunow—p 152  
Oxygen Administration by Nasal Catheter H L Marriott and K Robson—p 154  
\*Splenectomy for Thrombocytopenic Purpura Gwendoline Smith—p 157

**Splenectomy for Thrombocytopenic Purpura**—Smith reports a case and believes that until more knowledge of the pathology of thrombocytopenic purpura is gained the value of any one method of treatment must be based on isolated records. Evidence is in favor of the spleen being only one part of a diseased reticulo endothelial system and some observers do not recommend splenectomy on the ground that only partial removal of the diseased tissues is effected. It seems that the spleen is certainly one of the largest single structures affected and if clinical results show that patients are improved and remain well, it would appear wiser to base treatment on these results. The actual platelet count is not a certain index of the severity of the disease or of the degree of recovery after operation. The platelet count may rise as soon as the splenic vessels are secured but may not show any increase for some days later. The criterion of permanent recovery is freedom from hemorrhages and purpura over an indefinite number of years. The presence of accessory spleens is occasionally a cause of recurrent symptoms, and they should be looked for at operation and removed if found. In a certain number of cases a long period of good health has been assured by operation in the acute and chronic states of the disease. In acute cases that fail to respond to medical measures the mortality without surgical intervention is in the region of 100 per cent. In chronic cases the indications are not so clear, but splenectomy would appear advisable in those of moderate severity which fail to improve with drugs and blood transfusions or suffer from acute exacerbations of purpura, with a persistent low platelet count. Cases of mild severity will respond to treatment of anemia and removal of septic foci. A certain percentage of recurrences must be expected but one may anticipate that even then the symptoms will gradually lessen and eventually disappear in the majority.

## Lancet, London

1 179 238 (Jan 25) 1936

- Clinical Medicine Farewell Lecture Horder—p 179  
\*Exophthalmos Following Administration of Thyroid Extract W R Brain—p 182  
Early Amputation for Severe Crushing of Limbs. Note on Twenty Cases L Abdelsamee—p 187  
Gallop Rhythm and Physiologic Third Heart Sound C Brimwell—p 189  
Sonne Dysentery in Mental Hospital J J Laws—p 192  
Sarcoma of Duodenum G Slot and M H Fridjolin—p 194  
Spontaneous Fracture in Acute and Subacute Osteomyelitis. Report of Two Cases R C Tatham—p 195  
Twin Locking. Two Cases J S Coleman—p 196  
Inhalation of Common Pins J McFarland—p 198

**Exophthalmos Following Administration of Thyroid Extract**—Brain states that the difficulty of explaining exophthalmos is enhanced by the fact that the administration of thyroxine or of thyroid extract whether experimentally to animals or therapeutically to man does not as a rule lead to exophthalmos. Not more than twenty such instances have been reported. The development of progressive exophthalmos in patients who have previously undergone subtotal thyroidectomy for thyrotoxicosis is a closely related phenomenon since this may be precipitated by the administration of thyroid extract to correct postoperative hypothyroidism. A new case of exophthalmos following the administration of thyroid extract is presented. The significance of this sequence of events is discussed in the light of this and previously reported cases and of recent experimental work on exophthalmos. Exophthalmos can be produced experimentally by the administration to animals of drugs that stimulate the sympathetic nervous system. Thy-

roxine appears to facilitate the action of such drugs in producing exophthalmos. Exophthalmos can be produced by the thyrotropic hormone of the pituitary both in intact animals and in animals from which the thyroid has been removed, and there is some evidence that this hormone produces exophthalmos more readily in the presence of hypothyroidism. Progressive exophthalmos may develop spontaneously following subtotal thyroidectomy in man even when the basal metabolic rate is subnormal, or may be precipitated in such individuals by the administration of thyroid extract. Very rarely the administration of thyroid extract for the treatment of myxedema, the relief of obesity or some other purpose is followed by the development of exophthalmos. It is probable, therefore that, when exophthalmos follows the administration of thyroid extract, this is not a direct result of the action of the thyroid extract but is due to some other substance which in certain rare individuals is produced in response to thyroid extract. Experimental evidence suggests that this substance may be the thyrotropic hormone of the pituitary.

## Medical Journal of Australia, Sydney

1 75 108 (Jan 18) 1936

- What Medicine Owes to War and War Owes to Medicine R M Downes—p 73  
Transurethral Prostatic Resection. Series of Operations on One Hundred Patients J W S Laidley and M S S Earlam—p 80

## South African Medical Journal, Cape Town

10 136 (Jan 11) 1936

- History of Medicine Leprosy in Cape Colony (1756-1892) P J Venter—p 1  
O Agglutinins for Bacillus Typhosus in an Uninoculated Native Population W D Alves—p 6  
T A B and Brucella Agglutinins in an Uninoculated Native Population W D Alves—p 7  
Normal Agglutinins and Their Bearing on Diagnosis of Typhoid Fever by Agglutination Tests W D Alves—p 9  
Possibility of Eradicating Bilharzia by Extensive Planting of the Tree Balanites V A Wager—p 10  
Climate and the Native A O Dreosti A J Orenstein and J S Weiner—p 11  
\*Modern International Type Classification of Leprosy R C Germond—p 17  
Diet and Health in South Africa II Malnutrition F W Fox—p 25

**The Modern International Type Classification of Leprosy**—Germond gives the new international classification of types of leprosy. First as regards the definition of the most important terms. 1 It is suggested that the term 'leprotic' be applied to changes that present clinical or microscopic evidence of inflammatory processes typically of granulomatous nature which are apparently caused by *Mycobacterium leprae* in them. In such lesions the organism can usually be demonstrated by the ordinary methods of examination. 2 'Infiltration' is a term commonly applied to a diffuse thickening of leprotic nature involving the skin or mucosa which is not of definite nodular papular or macular form. The term may also be applied to diffuse leprotic conditions in other organs. 3 A nodule is a definitely thickened, rounded, circumscribed mass of leprotic nature commonly occurring in the skin subcutaneous tissue or mucosa. 4 A papule is a small solid elevation of the skin of leprotic nature not more than 5 mm in diameter. 5 A macule is a circumscribed area of skin showing changes in color sometimes with slight elevation or depression. Secondly the proposed classification is given as follows. All neural (N) cases are those that show evidence of actual or previous neural involvement alterations of sensation with or without changes in pigmentation and circulation trophic disturbances or paralyses and their consequent results atrophic contractures ulcerations. These are not accompanied by leprotic changes in the skin. All cutaneous (C) cases are those that show leprotic lesions in the skin. Such cases may or may not show at any given time clinical manifestations of neural involvement. Subtypes are classed NI, NII and NIII on the one hand, and CI, CII, CIII on the other according to the degree of severity. In all cutaneous types there may be varying degrees of neural involvement and such cases should be recorded to indicate the degree of involvement as for example C<sub>N1</sub>. Secondary neural are those neural cases that were formerly cutaneous but from which the active leprotic lesions have disappeared.

## Gazette Medicale de France, Paris

43 41 88 (Jan 15) 1936

Acute Benign Adenolymphoiditis R Debre M Lamy R Messimy and J Bernard—p 49

Rickets in Haiti M Armand—p 53

Role of Trauma in Etiology of Parkinsonian Syndromes P Der villee—p 55

\*Some Remarks on Rapid and Radical Reduction of Infantile Scolioses by Hyperextension of Shoulder J Le Cam—p 63

Optic Neuritis of Pentavalent Arsenic P de Font Reaulx—p 73

**Reduction of Infantile Scolioses**—Le Cam has previously described a law which he believes is valuable in the correction of infantile scoliosis. This law may be stated as follows: If a shoulder is maintained in an elevated position, it results in the hypertrophy of the corresponding hemithorax and the atrophy of the opposite hemithorax. It thus forces the vertebral column to curve and inevitably produces the formation of a scoliosis the convexity of which is toward the side of the raised shoulder. A number of cases of infantile scoliosis have been treated by applying this law. When properly performed there is no necessity to fear that the shoulder which was raised by the aid of an elastic tampon will remain raised after the end of the treatment. All scolioses of nurslings treated immediately are cured rapidly and permanently. Later the reduction of the curve is obtained rapidly if it is of recent origin and not too pronounced. The less exaggerated scolioses remain treatable for a longer time. He recommends this treatment as a relatively simple and effective method of meeting the problem of scoliosis in infants and children.

## Clinica Medica Italiana, Milan

67 73 144 (Feb) 1936

Gastric Chemism and Acidosis in Gastroduodenal Ulcers Tusneida Tamburri and F Torchiana—p 75

\*Intravenous Chromoscopy in Achylia A Allodi and F Quaglia—p 88

\*Velocity of Blood Circulation from Cubital and Dorsal Vein A Bertola—p 102

Acute Cardiovascular Insufficiency Secondary to Diseases of Respiratory Tract Cases L Capani—p 117

Ferments in Fluids of Effusions Amylase A Fucci—p 136

**Intravenous Chromoscopy in Achylia**—Allodi and Quaglia performed gastric chromoscopy after an intravenous injection of 0.005 Gm of neutral red in 10 cc of distilled water in sixty-five patients suffering from achylia which persisted in all but fifteen cases in the group after the administration of Ewald's meal and in about half the number of patients after performance also of the histamine test. The results of chromoscopy are considered negative when the dye fails to appear in the gastric juice within seventy minutes of the intravenous injection. Chromoscopy gave late positive results in half the number of patients of the first group and negative results in the other half. In the latter subgroup however, the results became positive by performance of the histamine test immediately after failure of chromoscopy. In patients of the second group chromoscopy gave negative results which were not modified by the performance of the histamine test immediately after failure of chromoscopy except in four cases. The authors conclude that chromoscopy is not a substitute for the histamine test in the diagnosis of achylia but it has a complementary value to the test. The results of the latter are analogous to those of the former but they are not constantly in mutual accordance with each other. The authors advise a chromoscopy in all patients in whom achylia persists after administration of Ewald's meal regardless of the results either positive or negative of the histamine test and also the histamine test immediately after failure of chromoscopy. The failure of the latter after the failure of the histamine test is probatory for the existence of complete achylia. The technic of chromoscopy is easy and no unfavorable complications follow its performance.

**Velocity of Blood Circulation from Cubital and Dorsal Veins**—Bertola made determinations of the velocity of circulation in fifty persons aged from 18 to 80 including normal persons and patients suffering from cardiac diseases anemia, ascites edema and certain infections. The circulation time was measured by the calcium chloride method from the cubital vein or the arm and the dorsal vein of the foot to the arteries of the head. The author found that the velocity of circulation is

greatly diminished in cardiac diseases, especially in the stages of decompensation. Circulation from foot to head is slower than circulation from arm to head in cardiac patients, a fact that is explained by the modifications of the venous pressure and the existence of stasis. The velocity of circulation, both from the cubital and the dorsal veins, is increased in anemia, and the more intense the anemia the more rapid the circulation. The relation between the rapidity of circulation and the intensity of anemia is not constant, however, and there are many patients suffering from intense anemia in whom the circulation time is either normal or retarded. The increase of the velocity of circulation in anemia is due to a mechanism of compensation connected with the diminution of the power of oxygenation of the blood. Normal or retarded circulation is probably due to myocardial insufficiency, which interferes with the establishment of the compensatory mechanism. Circulation from both the cubital and the dorsal veins is increased in febrile diseases of the respiratory tract, probably owing to the increased output of blood during fever and the resulting increased frequency of the pulse. It is normal in patients suffering from abdominal tumors with ascites and edema as well as in diabetic patients.

## Prensa Medica Argentina, Buenos Aires

23 481 542 (Feb 19) 1936

\*Bronchial Factor in Ayerza's Disease M R Castex E L Capdehourat and E S Mazzei—p 481

Fistulography and Cholangiography During Operations P L Mirizzi—p 520

Provoked Pneumothorax in Pulmonary Tuberculosis Accident of Work B B Spota—p 521

Congenital Solitary Kidney Clinical Diagnosis Case F J Farlet and A R Rufino—p 522

Intradermal Anesthesia in Acute Phlegmasia A F Pirodi—p 526

**Bronchial Factor in Ayerza's Disease**—Castex and his collaborators performed bronchography in seven patients suffering from Ayerza's disease. In all cases the picture of the bronchial tree was that of the so-called winter tree, in which the branches (bronchi of large caliber) but not the foliage (bronchi of small caliber) could be seen. The bronchographic aspect of the "winter tree" is due to retention of iodized poppy-seed oil in the bronchi of large caliber and it is a characteristic of either chronic bronchitis with dilatation of the bronchi or diffuse sclerosis of the lung and emphysema. The retention of iodized poppy-seed oil in the bronchi of large caliber shows that the alveolar part is involved in the pathologic process earlier than any other segment of the tree. The condition interferes with the aspiration of air by the alveoli and its entrance in the alveoli and also with the diffusion of gases through the alveolar endothelium. Insufficient inspiration and expiration follows and as a result the syndrome of hypoxemia and hypercapnia develops. The constant presence of chronic bronchitis and subsequent dilatation of the bronchi in all the authors' cases prove their statement that cardiovascular insufficiency and the metabolic disturbances of Ayerza's disease are secondary to respiratory insufficiency due to chronic bronchitis and its sequelae. Dilatation of the bronchi is selectively located in the bronchi of large caliber and intensifies itself as the disease progresses. It is interpreted by the authors as caused by a detrimental action of chronic bronchitis on the structure, elasticity and kinetics of the bronchi. Dilatation was of the bronchiectasis cylindrical type in all the authors' cases which explains the lack of fetor in the bronchial secretions of patients suffering from Ayerza's disease. The dead space was increased in proportion to the intensity of bronchial dilatation in all cases. The anatomopathologic study of the bronchial lesions confirmed the part that chronic bronchitis played in the onset and evolution of the syndrome of Ayerza's disease.

## Klinische Wochenschrift, Berlin

15 289 328 (Feb 29) 1936 Partial Index

Tumor Specificity and Tumor Genesis H J Fuchs and H Kozaryk—p 289

Vitamin C Studies on Urine and Blood E Gabbe—p 292

Studies on Increase of Porphyrin in Erythrocytes K Lagered—p 296

\*Treatment of Epidemic Meningitis with Roentgen Rays H Hippe and U Gruninger—p 304

\*Is Ice Bag Advisable in Gastric Hemorrhages? M Dobreff—p 308

**Treatment of Epidemic Meningitis with Roentgen Rays**—Hippe and Gruninger direct attention to a former report on the use of roentgen rays in meningitis (abstracted in THE

JOURNAL, Sept 8, 1934, p 793) and describe their more recent experiences with this treatment. They report the histories of two children with epidemic meningitis, in whom roentgen irradiation has had a favorable effect on the signs of irritation that remained after treatment with lumbar puncture meningococcus serum and blood from adults. In the first child the rays were applied to five cranial fields (two temporal fields and one each in the frontal parietal and occipital regions) and one cervical field. The irradiations were made on six successive days each field receiving 150 roentgens. The tension was 180 kilovolts the current strength 6 milliamperes the filtration 0.5 mm of copper and 1 mm of aluminum, the distance 30 cm and the size of the fields 8 by 10 cm. In the second case the rays were applied to five cranial fields (120 roentgens each). In the conclusion the authors point out that they do not expect from the roentgen treatments an influence on the causal organism as such but they aim to reduce the secretion of the choroid plexus and thus the pressure of the cerebrospinal fluid. On the other hand they think that the anti-inflammatory action of the roentgen rays exerts a favorable influence on the inflamed meninges. Since in the roentgenotherapy of inflammations not only the dosage but also the time of the treatment is important they suggest that the usual treatment be employed (lumbar puncture with removal of the cerebrospinal fluid and serotherapy) during the acute stage of the meningitis. However, if this treatment does not result in the complete disappearance of fever and of the meningeal signs, roentgenotherapy should be resorted to.

**Use of Ice Bag in Gastric Hemorrhages**—Dobrefi reviews the literature on the subject and finds that although there are some contradictions, the majority of the investigations indicate that the application of the ice bag results in an increased kinetic and secretory action of the stomach. Since the increased activity of an organ is accompanied by a greater blood perfusion, it becomes evident that the application of the ice bag produces the exact opposite effect of that which is desirable in case of gastric hemorrhages. Since the definite solution of this problem is of considerable importance the author studied the effect of the ice bag on the motility, secretion and visible changes in the gastric mucous membrane in a woman in whom a gastric fistula had to be made on account of complete stenosis of the esophagus. In other respects the woman was healthy. The direct observation of the inside of the stomach was done by means of Kalk's laparoscope introduced by way of the fistula. It was observed that the application of the ice bag to the skin in the region of the stomach resulted in an increase of the peristalsis, hyperemia of the mucous membrane and increased secretory action whereas the application of a hot water bag had exactly the opposite effect, namely reduction of the peristalsis, anemia of the mucous membrane and reduction of the secretory action. On the basis of these observations and of reports in the literature the author concludes that the application of the ice bag is contraindicated in gastric hemorrhages.

### Wiener klinische Wochenschrift, Vienna

49 321-322 (March 13) 1936 Partial Index

- Hepatorenal Syndrome J. Faltitschek and L. Hess—p 325
- Permanent Results of Nonspecific Treatment of Diabetes G. Singer—p 326
- Treatment of Actinomycosis by Means of Surgery and Lymph Node Extract F. Trauner—p 330
- Silent Cavity A. Sattler—p 331
- Treatment of Menstruation Disturbances J. Novak—p 337

**Hepatorenal Syndrome**—Faltitschek and Hess point out that cellular impairments of the liver if they reach a severe degree cause disturbances in the water exchange. Edema has been observed in patients with hepatic diseases in which cardiac and renal causes could not be detected. Water retention has been noted in catarrhal icterus, and it is also known that the water elimination increases as soon as the jaundice subsides in these cases. In acute atrophy of the liver one of the typical symptoms is oliguria and occasionally anuria. Then there is biliary cirrhosis in which decrease in temperature and the disappearance of jaundice is accompanied by polyuria. However, in addition to the hepatic there is also a renal factor concerned

in the disordered water economy of patients with liver disease. The occurrence of icterus cylinders and frequently a mild albuminuria indicate an anatomic lesion of the kidney but in addition to this it may be assumed that the liver influences the water economy by a hormone action on the kidney. The authors demonstrate that this renal factor plays a rather important part in the clinical and pathologic aspects of liver diseases. In regard to the pigment elimination they point out that hemolytic icterus which is accompanied by blood decomposition takes an acholuric course because the indirect bilirubin that develops from the decaying erythrocytes is not suited for elimination by the kidneys and accumulates in the blood. The authors demonstrate that even the direct bilirubin fails to pass the kidney under certain conditions in spite of the fact that it is present in the blood in amounts far in excess of the physiologic measure. In such cases icterus and acholuria appear in spite of considerable direct bilirubinemia. The authors report three cases. The episodically appearing icterus was not of hemolytic origin; this is proved by the pigment content of the feces, the absence of an impaired resistance of the erythrocytes and the presence of direct bilirubin in the serum. Although the latter reached high values in the serum there was no bilirubinuria because the kidney had lost its capacity to eliminate bile pigment. With the return to normal renal function the excessive amounts of bilirubin disappeared from the blood. The authors cite other cases from the literature that resemble the ones observed by them.

### Zentralblatt für Gynäkologie, Leipzig

60 545-608 (March 7) 1936

- \*Radium Treatment of Climacteric Hemorrhages K. J. Anselmino—p 547
- Accompanying and Causally Significant Cases of Adenomyosis Interna Particularly Cases of Adenomatous Carcinoma of Uterus and Cases of Granulosa Cell Tumors of Ovary with Adenomyosis Interna H. Rockstroh—p 550
- Diagnosis of Chorion Epithelioma from Cerebrospinal Fluid F. K. Ewald—p 559
- Submucous Uterine Cyst A. Dnbravsky—p 564
- New Proofs for Pathogenic Significance of Trichomonas vaginalis M. Rodecurel—p 567
- Treatment of Leukorrhoea in Virgins G. Bakics—p 568

**Radium Treatment of Menopausal Hemorrhages**—Anselmino says that in spite of the increasing use of radium treatment in menopausal hemorrhages there is no general agreement regarding the dosage and the type of cases in which it is advisable. He shows that some apply doses upward to 3000 mg element hours others use doses as small as from 600 to 800 mg element hours and many now apply doses of 1200 mg element hours. At his clinic the doses have been steadily decreased from as high as 3000 mg element hours in 1928 to around 1000 mg element hours in recent years. Before evaluating the results of the after examinations of ninety-eight women who in the course of the last several years had received radium treatment for menopausal hemorrhages he discusses the technique. He always precedes the radium treatment by a curettage. Then he introduces 50 mg of radium element which is deposited in units of 10 mg in five silver tubes 0.1 mm in thickness which in turn are enclosed together in a brass container that has a wall thickness of 1.5 mm. In evaluating the results that were obtained at his clinic he finds that the cases that have been treated with doses from 800 to 1200 mg element hours react quite favorably to the treatment in that there was only one failure in fifty cases. A tabular report indicates that the higher the age of the woman at the time of the treatment the better the effect of the rays; that is smaller doses produce the desired effect. The more moderate doses have the advantage of not causing complications; there are no signs of intoxication and the symptoms of abolished function are mild that is somewhat like those of the normal menopause. Many women complain of leukorrhoea after the radium treatment but this disorder usually disappears in several weeks or months. In discussing the indications for the radium treatment he says that it is hardly ever employed in women under 40 years of age. He himself employs it as a rule only in women over 42 years of age who have climacteric hemorrhages. In these he usually does not differentiate whether a glandular hyperplasia exists

or not. However, in the milder cases he usually limits the treatment at first merely to a curettage. Thus the radium treatment is usually reserved for the more severe cases. For younger women he considers surgical intervention in the form of a supravaginal amputation or of a fundus resection advisable, in that such interventions do not affect the general organism as much as an excision of the ovarian function with radium therapy.

### Vestnik Khirurgii, Leningrad

41 1449 (Nos 114 115 116) 1935 Partial Index

- Basic Principles of Shock Therapy as Applied to Diseases of Gastro-Intestinal Tract S. M. Ryss—p. 16  
 \*Shock Therapy of Ulcerative Disease of Stomach and Duodenum by Intravenous Infusion of Heterogenous Blood S. M. Ryss, K. V. Stroylova, V. I. Vvedenskiy—p. 28  
 Treatment of Hemolytic Shock with Method of Gesse Filatov L. E. Eljashevich—p. 70  
 Internal Strangulation After Gastric Operations E. Khr. Kolkh—p. 117  
 \*Gastro-Intestinal Obstruction and Chloride Content of Blood V. M. Voskresenskiy—p. 126

**Use of Heterogenous Blood for Shock Therapy**—Ryss and his co-workers believe that allergy with local manifestations in the gastric mucosa is the basis of ulcerative disease in many cases. They obtained arterial blood from a dog and administered it intravenously in doses of from 1 to 15 cc. Two or three injections at intervals of from five to ten days constitute a course of treatment. There were in this group sixty-four cases of intractable recurring ulcer disease and ten cases of recurring ulcer after a gastro-enterostomy. The patients were kept on a liberal ulcer diet from which animal albumins as potential allergens were excluded. Good results were obtained in 80 per cent, satisfactory results in 12 and no effect in 8. The authors selected hemoprotein of heterogenous blood as the most suitable stimulant, because it is nontoxic and does not cause late complications such as paralysis or neuritis, because it possesses considerable antigen qualities due to ready solubility of its albumins and because it raises the cellular metabolism and phagocytosis. It is capable of activating separate organs and systems, in particular the connective tissue and the reticulo-endothelial system. By activating the regenerative and immunobiologic properties of the mesenchyma it favors early healing of the gastric duodenal ulceration. The best results were obtained from a course of three injections of large doses, 5, 10 and 15 cc of blood.

**Blood Chlorides in Gastro-Intestinal Obstruction**—Voskresenskiy reports 428 determinations of blood chloride made in eighty-three patients suffering from acute paralytic or mechanical ileus. He found that a fall in blood chlorides to 300 mg constitutes a grave prognostic sign in cases of acute ileus. Sodium chloride administered intravenously rapidly concentrates within the lumen of the intestine. The greater number of their patients suffering from acute paralytic ileus responded with a lively peristalsis to intravenous infusion of hypertonic solutions of sodium chloride. This effect was not obtained when the intestine was gangrenous. In order to obtain a therapeutic effect in cases of paralytic ileus it is necessary to inject about 200 cc of a 10 per cent solution of sodium chloride.

### Acta Medica Scandinavica, Stockholm

SS 1127 (Feb 28) 1936 Partial Index

- Relation Between Glycemia and Glycosuria M. Roch, E. Martin and F. Seclounoff—p. 1  
 Behavior of Sodium Content in Blood Serum in Thyrotoxic Conditions B. Feldmaus—p. 39  
 Method for Making Graphic Intermittent Continuous Registration of Arterial Blood Pressure (Plethography) E. Eldblom—p. 45  
 \*Urobilinuria Following Water Tolerance Test in Hepatic Diseases E. Adlercreutz—p. 53  
 Comparative Features of Epidemic and Endemic Poliomyelitis in Denmark. Endemic Appearance of Poliomyelitis in Copenhagen 1934 N. I. Nissen—p. 72  
 \*Treatment of Obesity by Diet Relatively Poor in Carbohydrates P. Hanssen—p. 97

**Urobilinuria Following Water Tolerance Test**—Adlercreutz points out that numerous studies have demonstrated that the liver plays an important part in the water economy of the

organism. Disturbances in the hepatic function are usually accompanied by impairment of the water exchange, and in parenchymatous diseases of the liver an inhibition in the diuresis is often observed. The author describes the water tolerance tests he made on thirteen patients with various disorders of the liver (eight with acute hepatitis, two with hepatic cirrhosis, one with cholelithiasis and two with hepatic stasis). The tolerance tests were made in the form of the ordinary Volhard experiment with 1 liter of water taken in the morning, while the patient is still fasting and in as short a time as possible. After that the urine is collected at hourly intervals for four hours. These specimens are tested as to quantity, specific gravity and urobilin content. The urobilin concentration is determined in the night urine as well as in the day urine and control tests are made throughout the patient's stay at the hospital. Adler's modification of Schlesinger's fluorescence reaction (in the presence of alcoholic solution of zinc acetate, urobilin produces a greenish fluorescence) served for the determination of the urobilin content. All cases of hepatitis with one exception both cases of cirrhosis and one case of hepatic stasis showed a greater or lesser increase in urobilin. The author thinks that this is due to the fact that the water tolerance test increases the bile secretion and thus causes the increased elimination of the urobilin that had become stored in the liver as the result of a deficient function. Moreover, the urobilin content of the digestive tract increases and a reabsorption follows here, the urobilin passes the liver unchanged, enters the blood stream and then the urine, and increased urobilinuria results. However, in some cases the urobilinuria failed to appear. This occurred in cases in which there was a severe disturbance in the water economy. In some instances the water tolerance test had a surprising therapeutic effect in that the icterus disappeared quickly. However, this effect was largely dependent on the stage of the disease in which the water test was made. The phenomenon is probably related to the water exchange, for, if the latter was greatly impaired, the water tolerance test was even followed by a further exacerbation of the disorder.

**Treatment of Obesity by a Diet**—Hanssen cites studies by Hagedorn and others, which proved that obesity results from an abnormally increased transformation of carbohydrates into fat, owing to an anomaly of the metabolism. In the treatment of twenty-one obese patients the author took this origin of obesity into consideration in that he restricted the carbohydrate intake of the patients in order to prevent a surplus of carbohydrates being deposited as fat. To be sure, the amount of carbohydrates should be sufficient to insure combustion of fat without acidosis. The patients were given a diet that provided generous amounts of greens, some fruit, meat or fish in amounts of from 100 to 125 Gm, 100 Gm of bread, 65 Gm of cream, 65 Gm of butter, 35 Gm of cheese, two eggs and 25 Gm of olive oil. In the preparation of the foods the use of flour and sugar was avoided and substitutes were used instead. The daily food intake was approximately equal to 1,850 calories (71 Gm of protein, 117 Gm of fat and 112 Gm of carbohydrates). Exercises that might tire the patients were avoided, but care was taken that they got some fresh air every day. The author asserts that the average weekly loss of weight was 0.87 Kg. He compares these results with those obtained in other hospitals and finds that with his method the patients lose about the same amount of weight with an intake of 1,850 calories as is the case in another hospital in which the intake of patients under treatment for obesity is only 950 calories. In a third hospital in which the daily intake was only 765 calories, the loss in weight was somewhat greater. Whereas the diet prescribed by the author was rich in fat and relatively low in carbohydrates it was the opposite in the other hospitals. Besides effecting a reduction in weight with a relatively high caloric intake the author's diet has the added advantage that it is more readily adhered to after the patient has left the hospital. This is important since in a metabolic disorder such as obesity treatment must be continued. Examination of the author's patients from four to twenty months after they had been discharged from the hospital showed that the results were quite satisfactory.

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## MODERN TRENDS IN SURGERY

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SEATTLE

The man who attempts to point out the trends in any particular human activity must to a certain extent assume the role of a prophet—and that is a delicate thing to do, for events are bound to take place relentlessly and with little regard for the words of the prophet. If he has been lucky in his forecasts he usually receives but little credit, but if he has been wrong he is not allowed to forget.

There are two methods which the prophet may use. The first, and the more reliable, is to foretell the future by extending the knowledge of the past. In this method, however, there are two possible weaknesses. Our prophet may have only a dim or distorted view of ancient knowledge and facts on which to base his forecasts, again, recent events which are to prove of great importance may be so close to him that he cannot see them and hence has not yet been able to acquire a proper perspective. Unless he has such a perspective and a good knowledge of the well blazed trails of today, he will not be successful in projecting his speculation into the future.

The second method is by pure speculation, dreaming and divination. All prophets should be dreamers, in science and the progress of science, however, dreams must become hypotheses these must be succeeded by theories, and the theories finally proved or refuted. The man who would dream dreams of the future in medicine and surgery can hope for nothing but the severest tests of his prognostications. Hence I will only mention this second method of prophecy and adopt the far safer effort of presenting the subject of modern trends in surgery by relying as far as possible on the facts that are known and the comparatively recent changes and experiences that can be observed.

### ECONOMIC AND SOCIAL TRENDS

Profound changes are taking place at present in our social, economic and political condition. Without doubt these changes must affect the medical profession as a whole. Many citizens seem to desire such a change in our status. I recognize this ferment but I regret it exceedingly. The problem for the physician is twofold. Not only must he consider his own personal professional status but it is also his responsibility to consider the welfare of the general mass of citizens. The average person has little conception of the latter

problem, having been much influenced by all sorts of propagandists without any idea of the dangers that would ensue from the adoption of various ill considered schemes.

The leaders of medical thought must give time and attention to these problems, they cannot be ignored. We should never refuse to consult with lay groups and should seek opportunities for such discussion whenever possible. Only by such consultation and advice can our profession act as a stabilizer at a time when so many unsound plans for changing the economic relations of patient and physician are being presented.

During the past few years, diminished income and economic distress have not been limited to manual workers or to salaried brain workers. The professions also have felt the pinch. After ignorance and greed, this stress of economic necessity saps the roots of medical ethics. Competition is keenest and most ruthless near the foot of the economic ladder. The evil of secret fee splitting has never been fully abated. Economic necessity tends to increase this pernicious practice. It is time to warn again and to point out again that secret fee splitting is still as dishonest, as antisocial, as subversive of morals and as great an abuse of the fine confidential relations existing between physician and patient as it ever was. The patient and his illnesses and his operations are not a commodity for sale and barter between physicians.

As in other affairs of life, the first responsibility rests with the individual physician. The next is with his country society, which has within its power the first disciplinary measures. The function of the central organization must be largely educational and its influence first of all moral.

### ELEVATION OF STANDARDS IN SURGERY

Pressing for solution as never before is the question as to who should be permitted to practice major surgery. The right to undertake a major surgical procedure should not be bestowed lightly. To be a surgeon is at once a great privilege and a great responsibility. The day of the self-made surgeon is or should be past. With rare exceptions only those able to show unusual qualifications and special and adequate training should be admitted to the group that might be called "master surgeons."

The teaching of medical schools and hospitals has raised the quality of our craft immensely. Even so many poorly qualified men aspire to be surgeons, and there is as yet no way to prevent their assumption of quality long before they are justified. Their legal right under our various state laws is unquestioned. Obviously, the further responsibility of improving the grade of surgeons and protecting the public is in the hands of the surgeons themselves. An impressive lesson as to what may be done can be found in the improvement

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of medical schools and the raising of the standards of general medical education which followed the work of the Council on Medical Education beginning in 1905.

The desirability of special training in surgery and the great necessity for it have been so obvious to instructors and students alike that great progress has been made already in the line of postgraduate teaching in hospital positions, fellowships and assistantships. The establishment of an examining body like the American Board of Surgery at present contemplated would, while giving recognition to those fully qualified, act at the same time as a deterrent to those not qualified.

I do not want it understood that I favor withholding adequate instruction in surgery in the colleges from those who do not aim to become master surgeons. Many such men in the past have given good service in the field of minor and emergency surgery and can be depended on in the future. Isolated communities and even the smaller cities are usually dependent on such men for the relief of surgical conditions arising in their practice. On the judgment of these men and their recognition of their own limitations much depends. I speak in praise and in behalf of these faithful servants of the people. I believe that most of the criticism already voiced applies not to them but rather to the overambitious man of the large and middle sized cities.

#### THE PAST AND THE PRESENT

The history of the medical past has been presented so frequently that I offer no apology for referring to it briefly. Little of importance was performed in surgery prior to the beginning of the nineteenth century. True, the treatment of wounds was practiced in crude fashion. The aphorisms of Hippocrates and the anatomic studies of Galen and later of Vesalius mark the really important achievements of early centuries.

Leaving out of consideration the advancement of medical science in general, the clinical observation of disease, the improvements in physical diagnosis and some knowledge of pathology, surgery continued a sterile field of endeavor. Not until the nineteenth century did the landmarks of importance from a surgeon's point of view become progressively more frequent. The abdomen was invaded by daring operators, mostly for ovarian tumors and in spite of the staggering mortality rate an increasing number of successful cases were reported.

The advent of general anesthesia in 1846 for the first time made possible the performance of operations of election. Even with this boon the dreaded sepsis stood like a black angel guarding the sacred precincts of the human body until the practical application of Lister's theories, based on Pasteur's discoveries, in 1866. The establishment of bacteriology as a sound and accepted science allowed a gradual but logical transition from the antiseptic to the aseptic era. Opportunity was now afforded the surgeon to observe pathologic conditions in the living body and stages of disease processes could be noted for the first time. New areas of the body were explored by the surgeon's knife and diseases never before considered surgical were treated successfully. Thus anesthesia, asepsis and bacteriology paved the approach to modern surgery.

In the last fifty years and especially since 1900, great strides have been made in the practice of the surgical art. By experimenting with new theories and by the trial and survival of some of these, the surgeon has been able to utilize discoveries in the other sciences and to make them an integral working part of the practice of his art.

The use of x-rays has added much not only to the diagnosis but also to the successful treatment of certain lesions. Somewhat more recently, radium has come to play an important part in treatment, especially of neoplastic conditions. The employment of electricity in the form of radiofrequency currents has made successful certain procedures previously impossible. By its use in the prevention of hemorrhage and the checking of the spread of malignant tumors, many lives have been saved.

Numerous instruments for diagnostic precision have been introduced during this latter period of surgical progress, including the cystoscope, bronchoscope, esophagoscope, proctoscope and lastly the gastroscope.

From the practice of his art came greater improvement in technical skill to the surgeon. Better lighting, better instruments, better organization of hospitals and their facilities, greater utilization of team work between the surgeon and allied specialties in diagnosis and treatment—all have contributed to the remarkable advances this branch of medicine has made in the past few decades. Improved hospital facilities, better nursing care and more pertinent methods of preoperative and postoperative care all have had their part in advancing surgery to its present status.

While all this improvement in technical skill was taking place, while the knowledge of the pathology of living tissues was being extended, while more and more refined and reliable mechanical aids were multiplying, a steady increase in the sciences of physiology and chemistry has supplied the surgeon of recent years with a new outlook on therapy. Surgery for fifty years had concerned itself chiefly with the correction of the mechanical defects of the body. Diseased organs had been removed, an obstructed bowel had been corrected, tumors had been destroyed—procedures made possible by the practical application of knowledge concerning the anatomy, chemistry and physiologic activity of the human body. But the surgeon of today is no longer content with these procedures. His desire is to restore if possible the whole organism to its physiologic harmony—reconstructive surgery. Vain hope, you may say, but still a goal devoutly to be sought!

One of the earliest efforts to influence physiologic balance by operations on the endocrine glands was the operation of hysterectomy and ovariectomy for hysteria and dementia—an effort soon found to be misdirected. Many of the ductless glands are now treated surgically with brilliant success. The results of thyroid surgery are too well known to need emphasis. Surgical treatment of dysfunctions of the adrenals, parathyroids and pancreas is being practiced rather widely, and many spectacular results are reported in the literature.

So, too, a better knowledge of the anatomy and the function of different parts of the nervous system has in recent years aided much in the diagnosis of abnormal conditions of that system and has permitted great advances in their surgical treatment. Surgical procedures for the relief of intractable pain have added immeasurably to the comfort of countless sufferers. Operations on the sympathetic nervous system, by increasing blood supply to certain parts, have saved many a person the loss of a useful bodily extremity. More recently, certain patients with hypertension have been assured much longer life and greater happiness by operations on the splanchnic nerves.

Thus the discovery of the three basic factors of anesthesia, asepsis and bacteriology, furthered by the development and application of anatomy, pathology,



chemistry and physiology, promoted rapid progress in surgery. We have been permitted to perform surgical procedures undreamed of before their discovery. We now successfully explore and treat surgical conditions of practically every portion of the body. The abdomen and even the chest and the intracranial cavity may be entered with impunity by competent surgeons. These procedures would have been declared impossible less than a hundred years ago. With our increasing knowledge and our improvement in technic, we are now in a transition era that is a transition from surgery as a mechanical correction of disorders of the body to surgery aimed at a restoration of normal bodily function. The surgeon of today is concerned not only with the eradication of the morbid process but also with the restoration of the body to the physiologic normal.

#### THE FUTURE

If I may now be permitted to project these past and present tendencies into the future, some foresight may be gained as to whether we are tending, in surgery specifically and perhaps in medicine generally. In this respect I have little sympathy for those who assert that no further improvement is to be expected in surgical technic. No less an authority than Billroth is credited with having made such a statement long ago. From time to time others equally respected have made similar remarks. We have seen how history has rapidly and consistently refuted their pessimistic prophecies. Progress in this element has continued with increasing rapidity. Technical skill will continue to be improved.

There is no limit to mechanical ingenuity in the production of new apparatus. New instruments will not only improve the technical skill but as diagnostic aids will enable the surgeon to determine and correct disorders of function possibly even before morbid processes develop. It is truly hoped that the latter state will be reached. Therein surgery will become a preventive measure, so to speak, as well as a curative agent. The trend of medicine generally is toward prevention. Surgery is and will continue keeping pace in this direction.

The far more numerous and better equipped investigators in all lines of scientific endeavor speak for more rapid progress in the near future than those of us who have observed the remarkable strides in the past quarter of a century can possibly conceive at this time. Anesthetics and the methods of their application are constantly being improved. It is not too much to expect that an ideal in this respect will soon be conceived and developed for us.

Greater team work between all the specialties in the medical art is confidently expected. Cooperation between the physiologist and the surgeon has already meant much to surgical progress as we have seen. This is true of the consultation between all the groups. More such cooperation cannot fail to further medical and surgical progress.

There is at present an increasing number of skilful well trained surgeons throughout the country. Where yesterday one or only a few were capable of some particular operation there are now dozens competent to undertake it. This wide diffusion of good surgeons is a most significant trend. No longer is it necessary for a patient to travel a long distance for special care. Each section of the country will have a selection of men competent in every special field of surgical endeavor. Naturally this will reflect to the betterment of medical care throughout the land.

Finally, may I plead that I am old enough and old fashioned enough in my point of view to speak a confident word for affability, kindness and a friendly personality on the part of the surgeon.

In the tremendous strides scientific medicine has made there has been overlooked one of our original and important aspects. That is the personal equation and the relation between doctor and patient. In the old days the instruction of a young medical student and doctor by a preceptor aided much in the development and furthering of this factor. The ripe years of experience of this older doctor gave much to the young man in the way of kindness and consideration and ability to be always ready to encourage the ill.

I fear that some of us became old in the practice of medicine before it was realized that the man of yesterday, with a limited amount of scientific knowledge, who in a kindly, knowing, sympathetic way placed his hand on the little girl's brow and said "Why, we will not let you suffer, you will be well in a few days" did more for her endocrine glands, that storehouse of chemical activities in her body to ward off and cure disease, than anything that has been discovered in recent years. So we must realize in the practice of medicine that fear, ambition, love, hatred, pleasing impressions cause a great and lasting influence on the greatest of all chemical laboratories that we carry in our bodies from birth until death. Medicine can go forward only by a blend of the heart with science, both of which are governed by the head. The young man who puts financial relations above everything else loses all the pleasures and fun of the game.

Certainly and thankfully we are not all made alike. I have seen the most skilled internist fail to detect some acute condition in which surgery was imperative. On the other hand, I have seen the surgeon with great experience overlook complications of the lungs, the liver or the kidneys. A friendly, thoughtful consideration of a patient's illness may have so many ramifications that he is always benefited by the advice of several men thinking along different lines. If we older men have been guilty in this respect, how much more are we obligated to teach our younger associates by precept and example so that they may avoid our errors.

#### CONCLUSION

My thesis then, is based on the fact that surgery as an art and a science is reaching a higher level of efficiency. This is the result both of teaching and of the untiring efforts of individual workers and cooperators. The present tendency is given to stressing the patient as a whole, the end in view being a restoration of physiologic harmony in the cure of his ailment. Thus the surgeon will come to treat and cure many diseases now considered incurable as well as many now considered nonsurgical in nature. Nor will he jealously insist on continuing the treatment of conditions which experience will prove from time to time, can be better managed by other than surgical means.

Further and narrower specialization may follow, though in this respect we seem now to be approaching a logical limit. Especially is this true when we consider the ideal that the patient must be treated as a personality rather than as the harbinger of a disease in which we happen to be interested.

Science like Time marches on. Progress beyond our wildest imaginings is coming. Surgery and medicine as a whole must and will continue in the vanguard.

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EVALUATION OF ENDOCRINE THERAPY  
IN PRIMARY DYSMENORRHEA

AN ANALYSIS OF THIRTY-NINE CASES

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This paper concerns that type of painful menstruation known as primary dysmenorrhea, for which there seems to be no adequate explanation. The clinical picture is well known. It is characterized by spasmodic pains beginning from thirty-six to forty-eight hours prior to or with the onset of the flow and subsiding during the first twenty-four hours of menstruation. Nausea and vomiting often accompany the attack. The very nature of the pain suggests its uterine origin. Such colic may arise from either heightened uterine contractions or painful spasm of the cervical sphincter. Evidence that both mechanisms may play a role has appeared recently in the literature.

However, if uterine colic per se is the cause of the pain, the primary cause of the disorder is still hypothetical. Some of the theoretical explanations are plausible, yet not one has attained universal acceptance, because of insufficient proof. The manifold forms of treatment that have been hopefully proposed, enthusiastically applied and regretfully discarded serve to emphasize the lack of knowledge of the etiology of primary dysmenorrhea. Each form of treatment is based on a different conception of the etiology of the malady.

THEORIES CONCERNING THE ETIOLOGY OF  
PRIMARY DYSMENORRHEA

In any study of primary dysmenorrhea, one must consider the constitutional and psychic background of the individual patient. The so-called constitutional inferior or the hypersensitive type (Libman) has a definitely increased pain reaction which may color the symptomatology and alter its clinical evaluation. Novak and Harnik<sup>1</sup> stress the importance of psychic trauma as an etiologic factor and maintain that psychotherapy relieves a large number of patients suffering from primary dysmenorrhea. However, neither a high degree of sensitivity to pain nor an apprehensive emotional state can possibly be the sole cause of any instance of primary dysmenorrhea. Perhaps the most important role played by the psychic element in this disease is that of complicating the proper evaluation of any therapeutic measure employed.

A neurogenic basis for primary dysmenorrhea has been advanced by some who ascribe the etiology to an abnormal reactivity of the cervical nerves. That nerve irritability or vagotonic spasm of the circular musculature of the isthmus may be a factor is favored by reports of relief through the use premenstrually of antispasmodics such as atropine,<sup>2</sup> benzyl benzoate,<sup>3</sup> and calcium.<sup>4</sup> A successful form of neurosurgical therapy, resection of the superior hypogastric plexus (presacral

nerve), has been evolved.<sup>5</sup> That a full measure of relief follows such nerve resection is not surprising, since the pain-bearing fibers are severed. However, it is a relatively heroic procedure and should be reserved as a last resort in the treatment of primary dysmenorrhea. Others liken the disease to herpes zoster, regarding the ganglions of Frankenhauser as the primary seat of disease and the pain as an expression of secondary neuralgia. Keiffer,<sup>6</sup> basing his theory on dissections of the pheochrom system of the uterus and the fact that stimulation of the internal os causes pain, uterine contractions and cervical spasm, attributes sphincteric powers to the cervical tissue. He looks on the cervix as a sphincter with its "tonus" governed by a reflex arc through the lumbar cord and cervical ganglions. Thus, an abnormal state of the cervical ganglions may be the immediate cause of the spasmodic pain. This hypothesis finds support in the work of Bloss<sup>7</sup> and Kennedy.<sup>8</sup> Bloss cured more than 90 per cent of dysmenorrhoeic patients whose cervical ganglions were injected with 70 per cent alcohol. Kennedy has offered experimental data which support the view that estrogenic substance not only stimulates growth and vascularity of the lower genital tract but also exerts a trophic influence on the cervical ganglions. In his study of the plexus of Frankenhauser following castration, Kennedy<sup>8</sup> noted degeneration of the ganglion cells characterized by a decrease in the amount of Nissl substance and a diminished number of pheochrom cells. By the administration of estrogenic principle to castrated animals, Kennedy was able to reverse these changes, the ganglion cells becoming normal. Kennedy<sup>9</sup> further ascribes the therapeutic effectiveness of estrogenic substance in primary dysmenorrhea to its ability to restore the atrophic ganglion cells to normal, relieving both trophic hypoplasia and arrhythmic sphincter action of the cervix. Reports of relief of primary dysmenorrhea by the administration of estrogenic substances fairly abound in recent literature.<sup>10</sup> In my opinion, many of the reports err in describing the temporary relief of pain as a "cure."

Because dysmenorrhoeic patients usually, if not invariably, present other evidences of marked instability of the autonomic nervous system such as visceroptosis, gastro-intestinal spasticity and irritability of the bladder, primary dysmenorrhea must be viewed as being a local manifestation of a constitutional disease. In fact, Dutta,<sup>11</sup> Smith<sup>12</sup> and Cooke<sup>13</sup> have recently suggested that primary dysmenorrhea may be the expression of an allergic state. They found unusual sensitivity to

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certain foods or inhalants in most of their patients and offered desensitization treatment as a remedial agent in primary dysmenorrhea. This phase of the subject requires further investigation. Another debatable explanation is given by Whitehouse,<sup>14</sup> who attempts to explain all primary dysmenorrheas on the basis of membranous dysmenorrhea. He claims to have found pieces of hyperplastic endometrium in the menstrual discharges of fifty patients with primary dysmenorrhea and concludes that the expulsion of the hyperplastic endometrium gives rise to pain. The obvious question arises, Why is there an absence of dysmenorrhea in a large number of women with hyperplasia of the endometrium? Moreover, premenstrual endometriums of patients suffering from primary dysmenorrhea are usually in a normal secretory phase, which is a finding incompatible with the existence of endometrial hyperplasia.

The oldest explanation of the origin of primary dysmenorrhea is the one ascribing the pain to mechanical obstruction of the cervical canal. Theoretically, such an obstruction would cause retention of discharges and distention (pressure) pain. Fifty years ago it was inconceivable that there could be a cause for primary dysmenorrhea other than an obstruction caused by congenital or acquired cervical stenosis, pathologic ante-flexion of the uterus, or cervical myomas. Thus, the operation of cervical dissection, the use of the stem pessary and the application of the metronorkter enjoyed great popularity. However, it became apparent that not all patients with primary dysmenorrhea present anatomic obstructions and that many patients with acutely inflexed uteri are entirely free from menstrual pain. Eliminating the few patients with primary dysmenorrhea who present real cervical obstruction and who, accurately speaking, do not belong in the category of primary dysmenorrhea, one cannot deny that cervical dilation alone frequently relieves the pain. However, this fact does not prove the validity of the obstructive theory. In view of the newer knowledge of cervical function<sup>6</sup> and the trophic purposes of the cervical nerves,<sup>8</sup> the relief of primary dysmenorrhea following cervical dilation may be credited to a stimulative effect on the ovaries.<sup>15</sup> Such a result would be analogous to the ovarian reaction produced by mechanical or electrical stimulation of the cervix in experimental animals (pseudopregnancy).

Almost as time honored an explanation of the cause of primary dysmenorrhea as is the obstructive theory is that of uterine hypoplasia first propounded by Schultz<sup>16</sup> in 1903. The hypothesis suggests that primary dysmenorrhea is caused by stagnation of blood in the uterine sinuses and subsequent pressure pain because of insufficient musculature in an underdeveloped uterus. The most important argument against this theory is the fact that many women with the pituitary type of uterine hypoplasia are free from dysmenorrhea, whereas women with uterine hypoplasia of the primary ovarian type, characterized by a superlatively feminine appearance, gastro-intestinal irritability and emotional disturbances, have a high incidence of pri-

mary dysmenorrhea.<sup>17</sup> These facts and the additional observation that the uteri of patients with primary dysmenorrhea are often normal in size and consistency serve to emphasize the obvious fallacy in regarding hypoplasia as the sole cause of primary dysmenorrhea. However, the hypothesis of Schultz and the known ability of the ovarian follicular hormone, the estrogenic principle, to induce growth and vascularity of the lower genital tract (including the cervix uteri) form a theoretical background for the use of estrogenic substances in the treatment of primary dysmenorrhea.

Following the researches of Reynolds,<sup>18</sup> an endocrinopathic etiology for primary dysmenorrhea was propounded.<sup>19</sup> By means of an ingenious uterine fistula in an unanesthetized rabbit, Reynolds found that the normal uterine contractions disappear following castration, that administration of estrogenic substance restores them to renewed vigor and that the contractions produced by estrogenic substance are easily abolished through injections of corpus luteum hormone, progesterin, or the gonadotropic principle in the urine of pregnant women. Thus, it was shown that the gonadotropic substance present in the urine of pregnant women simulates progesterin in its quieting action on uterine muscle. More remarkable was Reynolds' observation that gonadotropic substance exerts its inhibitory effect on uterine contractions induced by estrogenic substance in the presence or absence of the ovaries, suggesting a direct uterine effect. Morgan<sup>20</sup> confirmed the work of Reynolds in the intact animal but found no quieting effect of gonadotropic substance on the uterine muscle in castrated animals. Thus, it was established that the excitant and the inhibitor of uterine contractions are ovarian follicular hormone and corpus luteum principle, respectively. These observations led Novak and Reynolds<sup>21</sup> to attribute primary dysmenorrhea to a premenstrual imbalance of the two ovarian hormones controlling uterine contractions, either an excess of estrogenic substance or a deficiency of the corpus luteum principle. Under such an abnormal endocrine influence the endometriums of dysmenorrhic women should invariably show a deficiency or a total absence of the secretory phase. That this is usually not the case is shown by a study<sup>22</sup> of the premenstrual endometriums in twenty women with primary dysmenorrhea fourteen of whom showed normal secretory endometriums (progesterin phase).

The use of corpus luteum substance in the treatment of primary dysmenorrhea was first recommended by Novak and Reynolds<sup>21</sup> on the strength of their theory. In the absence of an adequate commercial supply of the principle and in view of Reynolds' observations of the direct uterine effect of gonadotropic substance from the urine of pregnancy, the latter was suggested as a likely substitute. Recently, Witherspoon<sup>23</sup> and Browne<sup>24</sup> have reported on relief of dysmenorrhea with the use of urinary gonadotropic substance.

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## RESULTS OF ORGANO THERAPY

As previously mentioned, two endocrine substances (estrogenic substance and corpus luteum principle) have been advocated for the treatment of primary dysmenorrhea. Both forms of organotherapy are theoretically convincing. The corpus luteum substance (progestin) and its substitute, urinary gonadotropic substance, reduce the sensitivity of uterine musculature, but at best the effect would be purely temporary. The estrogenic principle supposedly removes painful cervical spasm either by inducing growth and vascularity of the hypoplastic cervix (Schultz) or by correcting disturbances of the cervical ganglions (Kennedy).

Bearing all this in mind, my associates and I have employed both modes of organotherapy in thirty-nine patients with primary dysmenorrhea. The duration of the dysmenorrhea prior to treatment was more than eighteen months in each instance, and the average duration was four years. The pelvic organs, as far as one could determine by examination were normal with the exception of palpable uterine hypoplasia in some

*Observations on Endocrine Therapy in Thirty-Nine Patients With Severe Primary Dysmenorrhea*

Form of Endocrine Therapy	Dose and Average Duration of Treatment	Number of Patients	Results			
			Cured	Temporary Relief	Substitutive Relief	Failure
Urinary gonadotropic principle (antuitrin-S)	200 rat units every other day for from 2 to 3 months	10	1	0	3	6
Estrogenic principle (emmenin)	1 tablespoonful (70 day oral units) three times a day for from 3 to 5 months	10	1	0	2	7
Estrogenic principle (progynon)	600 rat units three times a day for from 3 to 4 months	6	0	0	1	5
Estrogenic principle (progynon-B)	5 000 to 10 000 rat units every fourth day for from 3 to 4 months	13	0	4	6	3
Totals		39	2	4	12	21

instances. The ages of the patients ranged from 17 to 28 years. Thirty of the thirty-nine patients were nulliparas, and twenty-six of the group were sterile or had menstrual disorders (oligomenorrhea or hypomenorrhea). Ten were treated with a commercial gonadotropic substance obtained from pregnancy urine (antuitrin-S). Sixteen received small, oral doses of estrogenic substances (as liquid emmenin or progynon tablets). Thirteen were given large hypodermic doses of estrogenic principle in the form of hydroxyestrin benzoate (progynon-B). The substances were administered during the entire menstrual cycles for periods averaging three months. The results of treatment, as shown in the accompanying table, were tabulated as follows: "cured," when the patient remained well for a year or more after withdrawal of treatment, "temporary relief," when the patient was free from pain during the course of treatment and for from two to four months afterward, "substitutive relief," when the patient was entirely free from dysmenorrhea only while receiving treatment and in whom there was an immediate recurrence of dysmenorrhea on withdrawal of therapy, and "failure" when the patient obtained no relief from the treatment.

**Urinary Gonadotropic Substance**—Ten of the thirty-nine patients received antuitrin-S subcutaneously every other day in doses of 200 rat units (2 cc) for

periods of from two to three months. Four patients of this group experienced relief from dysmenorrhea; one has remained well for a period of fourteen months after withdrawal of treatment, and the other three had painless periods during the course of treatment only. The remaining six patients of this group were unaffected by the treatment. There were no constitutional effects noted as a result of the administration of the urinary gonadotropic substance. However, some of the patients, at some time during the course of treatment, complained of pain, redness and swelling at the site of injection. Such local reactions ordinarily subsided within twenty-four hours.

**Small Oral Doses of Estrogenic Principle**—Sixteen of the thirty-nine patients were given small oral doses of estrogenic substances. Ten of the sixteen patients received a complex containing trihydroxyestrin (emmenin) in doses of 1 tablespoonful (approximately equivalent to 75 day-oral units) three times daily for periods averaging four months. Three patients of the ten so treated were relieved of pain; one has remained symptom free for one year following the course of treatment, and the other two were relieved only while the emmenin was administered. The dysmenorrhea of the remaining seven patients who received emmenin was unaffected by the therapy. Six of the sixteen patients were given a commercial preparation containing keto-hydroxyestrin and trihydroxyestrin (progynon tablets) in doses of 600 rat units three times daily for periods averaging three months. One patient was free from dysmenorrhea while under treatment, the remaining five patients were unrelieved. There were no constitutional effects noted as a result of these small oral doses of estrogenic principle.

**Large Doses of Estrogenic Substance**—Thirteen of the thirty-nine patients were treated with estrogenic substance in the form of hydroxyestrin benzoate (progynon-B) administered intramuscularly in doses of 5,000 to 10,000 rat units every fourth day for from three to four months. Of this group, six were entirely free from pain only while the substance was administered and four remained symptom free from two to four months following withdrawal of treatment. The remaining three patients of this group were unaffected by the therapy.

It is interesting to note the absence of any constitutional effects, aside from a temporary disturbance of the menstrual cycles in several patients, following the administration of such massive doses of estrogenic substance (from 200,000 to 320,000 rat units during three to four months). The fact that such large doses of estrogenic principle are well tolerated and cause no constitutional disturbances in the human being was previously established by Mazer, Meranze and Israel.<sup>24</sup> Three of the eight regularly menstruating women in this group of thirteen patients experienced a delay of from one to three weeks in the onset of a single period while under treatment, but menstruation was regular subsequent to the withdrawal of treatment. This temporary menstrual disturbance—a delay of a single period and the establishment of a new date of onset of the subsequently regular cycles (irrespective of continued therapy)—was likewise noted in six of seventeen regularly menstruating women subjected to similar treatment for other conditions.<sup>24</sup> Kurzrok and his asso-

<sup>24</sup> Mazer, Charles, Meranze, D. R. and Israel, S. I. Evaluation of the Constitutional Effects of Large Doses of Estrogenic Principle. J. A. M. A. 105: 257 (July 27) 1935.

ciates<sup>25</sup> observed a similar, temporary disturbance of the menstrual cycles of women under treatment with large doses of estrogenic substance

## SUMMARY

1 From a review of the literature, primary dysmenorrhea is shown to be a disease of conflicting theories. No satisfactory explanation of its etiology exists.

2 Two forms of endocrine therapy have been proposed for primary dysmenorrhea, estrogenic substance and (in the absence of progestin commercially) urinary gonadotropic substance. As shown in the present study of thirty-nine patients, both forms of organotherapy are disappointing.

3 Urinary gonadotropic substance (antuitrin-S) administered to ten patients cured one and temporarily relieved three of dysmenorrhea.

4 Estrogenic principle, given orally in small doses (emmenin liquid or progynon tablets) to sixteen patients, cured one and afforded temporary relief to three of the patients.

5 Estrogenic substance, given hypodermically in large doses (progynon-B) to thirteen patients, produced no permanent results. Ten patients were temporarily relieved and three were totally unaffected by the therapy.

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CLINICAL OBSERVATIONS WITH INSULIN  
PROTAMINE COMPOUND

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Two papers that appeared in a recent issue of *THE JOURNAL*, one by Hagedorn and his associates<sup>1</sup> of the Steno Memorial Institute of Copenhagen the other by Root, White, Marble and Stotz<sup>2</sup> of the New England Deaconess Hospital, have aroused widespread interest in insulin protamine compound. This new remedy for diabetes already has been distributed to a good many physicians and soon will be on the market and available to all. For this reason it seems to be desirable to make available to others the experience that we have had with it.

The Danish investigators found that insulin precipitated from solutions of insulin hydrochloride with monoprotonic compounds and suitably buffered, was relatively insoluble in tissue fluids so that its absorption was delayed and its action correspondingly prolonged. They demonstrated that such insulin facilitated the management of cases of severe diabetes as indicated by smaller fluctuations of the sugar in the blood. The best results usually were obtained by giving the patient "ordinary" insulin in the morning and insulin protamine compound in the evening or with two doses of insulin protamine compound a day. A few cases were treated

effectively with a single dose. In many cases a smaller dose of insulin protamine compound was required than the dose of ordinary insulin used before. A more detailed report of the clinical studies in the Steno Institute is contained in a monograph by Krarup.<sup>3</sup>

The Boston physicians were able to confirm the Danish observations. Wide fluctuations in the levels of the blood sugar were less frequent and hypoglycemic reactions were largely avoided. At the time of writing, their experience was limited to fifteen cases, but since then they have treated more than eighty patients, with results that are pleasing.<sup>4</sup> In their paper they commented on certain inconveniences. The compound is not indefinitely stable and the protamine must be added to a given vial of insulin only as the insulin is needed for use within the ensuing few days. Since then they have found that it is stable for four weeks. Furthermore, the addition of the protamine, which they thought must be made with a dry, cool syringe, can now be made with a syringe which is wet with ethyl alcohol in which it has been kept for the purpose of insuring its sterility. The schedule of procedure in the Deaconess Hospital has been like that of Hagedorn, namely, the use in most cases of regular insulin in the morning and of the new preparation for the evening injection.

Our experience with insulin protamine compound (insulin-P<sup>5</sup>) is brief but intensive.<sup>6</sup> Only twenty patients have been treated at the time of this writing, but nearly all of them have been the subjects of prolonged observations in the hospital with trials of various schedules of administration of insulin. In the course of the observations more than 2,000 analyses have been made of the content of blood sugar, using in each instance capillary blood obtained from a finger or a lobe of an ear and subjected to the micro-analysis, for dextrose, of Folin. Ten of the twenty patients represented cases in which control of glycosuria and attacks of acidosis was exceedingly difficult or impossible with insulin-R. We grade such cases 4+. Seven other patients had diabetes of such severity that three or four injections daily and a total dose of more than 50 units of insulin-R had been required to maintain control. The remaining patients required from 30 to 50 units daily in two or three divided doses. Ten of the patients were children. The duration of the disease in every case was more than three years and in many cases the patient had been under our care for ten years or more. In most cases, with the use of a single administration of insulin we have been able to attain better control of glycosuria and a more stable level of the blood sugar than previously had been possible with multiple doses of insulin-R. Frequently, as will be described, this administration has consisted of the injection simultaneously but in separate sites, of insulin-P and insulin-R.

## TIME OF INJECTION OF INSULIN

We were led to the single intratumal administration of insulin-P, with or without supplementary insulin-R, by what appeared to be conclusive evidence that the action of insulin-P was prolonged for more than twenty-four hours and the observation that much of

<sup>3</sup> Krarup, N. B. Clinical Investigations into the Action of Protamine Insulin. Copenhagen, C. F. C. Gad, 1935.

<sup>4</sup> Root, H. I. Personal communication to the authors.

<sup>5</sup> For convenience of expression we have adopted the designation insulin-P for the regular water soluble insulin hydrochloride and insulin-R for insulin protamine compound.

<sup>6</sup> A small supply of insulin protamine compound was received from Dr. Hagedorn early in January. For this we wish to express our appreciation. Soon thereafter and regularly since then other material has come from the Eli Lilly Company through the courtesy of Dr. C. H. A. Clow. The observations to be reported were made with the preparation of the Eli Lilly Company.

<sup>2</sup> Kurzrok, L., Wilson, L. and Cassidy, M. A. The Treatment of Amenorrhea with Large Doses of Estrogenic Hormone. *Am. J. Obst. & Gynec.* 29: 771 (June) 1933.

From the Mayo Foundation.

<sup>1</sup> Hagedorn, H. C., Jensen, B. N., Krarup, N. B. and Weder, J. Protamine Insulin. *J. A. M. A.* 106: 177-180 (Jan. 18) 1936.

<sup>2</sup> Root, H. I., White, I. R., Marble, Alexander and Stotz, F. H. Clinical Experience with Protamine Insulin. *J. A. M. A.* 106: 180-183 (Jan. 18) 1936.

the effectiveness of insulin-P remains in abeyance until after the lapse of from four to six hours. An observation which reveals the absence of a quick effect, and also shows the late action, is recorded graphically in chart 1.

A woman, aged 49, who had diabetes of nine years' duration, had been under intermittent treatment by us since 1927 and was customarily receiving 55 units of insulin-R daily and a diet containing 111 Gm of carbohydrate, 65 Gm of protein, and 127 Gm of fat.

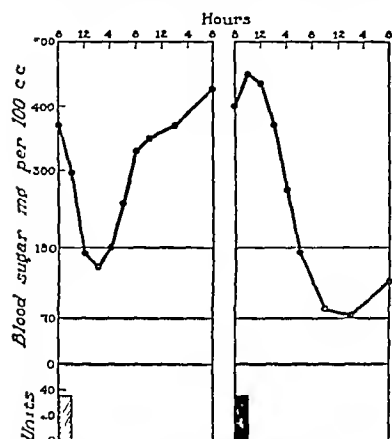


Chart 1—Effect of 35 units of regular insulin compared to that of the same dose of insulin protamine compound. Breakfasts containing 38 Gm of carbohydrate was served on these days but no other meals. Symptoms of severe acidosis developed the morning following the administration of the regular insulin; no such symptoms the morning following the administration of insulin protamine compound. In the charts the shaded columns represent ordinary insulin; the black columns insulin protamine compound.

was vomiting, with abdominal pain and air hunger. The carbon dioxide combining power of the blood plasma was 28 volumes per cent, and the urine for this period of twenty-four hours contained 41 Gm of dextrose and much acetone and diacetic acid. This, it should be emphasized, occurred after a single injection of regular insulin insulin-R.

Treatment was instituted. It involved injecting 1,000 cc of physiologic solution of sodium chloride and giving repeated

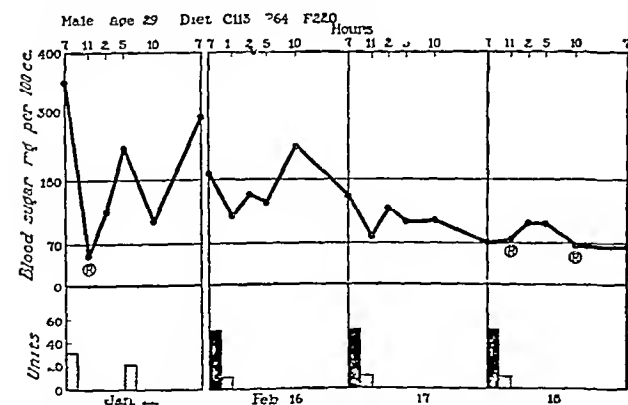


Chart 2—Improved control of glycosuria with insulin protamine compound supplemented with a small dose of regular insulin. The letter R enclosed in a circle in this and other charts indicates reaction. In no case were the reactions severe. The full effectiveness of insulin protamine compound is not apparent until the third day after the administration of the given dose.

does of insulin-R. Three days later February 5 the acidosis in the meantime having been brought under control a similar study was made after injecting insulin-P in a dose of 35 units. The blood sugar stood at 400 mg per hundred cubic centimeters about the same level as before. The breakfast was served and the noon and evening meals were withheld as they had been before. No more insulin was given. The blood

sugar increased after breakfast to a peak of 530 mg per hundred cubic centimeters, reached at 10 a.m. It then fell gradually and steadily until, at 2 a.m., February 6, it stood at 160. At 7 a.m., February 6, it was 270. The urine for the twenty-four hour period contained more sugar than it had in the experiment with insulin-R, but the single specimen of the morning of February 6 contained only a trace of sugar, and the patient, instead of presenting a condition verging on coma, was perfectly comfortable, free from any signs of acidosis, with no acetone to be smelled on the breath, and none demonstrable in the urine. Chart 1 shows the observation of February 2 on the left and the important data of another observation like that of February 5 on the right. This time a single injection of 35 units of insulin-P, with breakfast, but not followed by other meals or more insulin, left the blood sugar at 145 mg per hundred cubic centimeters the succeeding morning.

Insulin-P, when given before breakfast to a patient receiving the three meals of his regular diet, may not control the elevating effect of breakfast on the blood sugar. By noon however its action is apparent. Furthermore, when the case finally is brought under complete control, so that the blood sugar before breakfast is normal, the rise following breakfast frequently

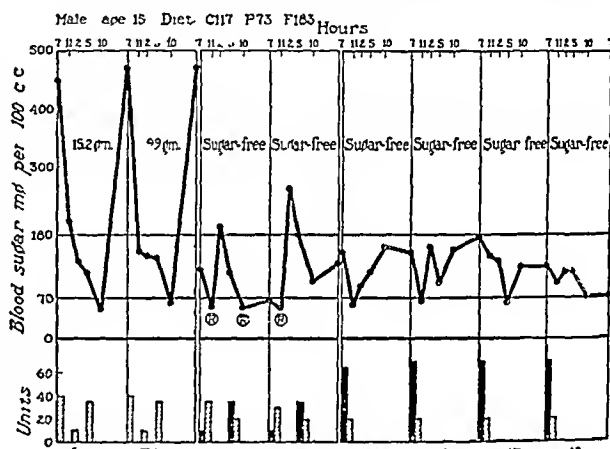


Chart 3—Poor control of glycemic level in a case with insulin used in multiple doses compared to satisfactory control after February 15 with a single dose of insulin protamine compound supplemented with a small dose of regular insulin.

has not been enough to provoke glycosuria. In cases in which glycosuria occurs after breakfast, and in many cases for the first few days after beginning the use of insulin-P we have administered a small dose of insulin-R as a supplement to insulin-P. Usually the insulin-R has been given at the same time, that is, in the morning. The insulin-R must be injected in a separate site, if it is mixed with insulin-P it is combined by the excess of protamine in the insulin-P and its quick effect is lost.

In cases of severest diabetes, large doses of insulin have been required. For instance, in one case 70 units of insulin-P and 30 units of insulin-R were given before breakfast. The blood sugar at the time of the injection was 90 mg per hundred cubic centimeters at 11 a.m., 70, at 2 p.m. 160 at 5 p.m. 100 and at 10 p.m. 75. The following morning it was 65 mg per hundred cubic centimeters. This dose was excessive, it was diminished the following day.

Illustrations of satisfactory control of the blood sugar level with morning injections of insulin-P supplemented with a small dose of insulin-R are given in charts 2 and 3. The blood sugar values in a case in which, after four days, only insulin-P was used are shown in chart 4. It should be emphasized that although single, large



doses of insulin-P apparently are safe in severe cases, when the patient takes his food, it is very important, if he receives such doses, that he get the food. Should a patient refuse his food, after receiving an injection before breakfast, periodic administrations of dextrose would be indicated for the remainder of the ensuing twenty-four hours.

In order to obtain more information about this we gave 50 units of insulin-P in one case, withheld food and followed the blood sugar level by examination at frequent intervals (chart 5).

The patient previously had been brought under good control with single morning injections of 60 units of insulin-P. It happened that the blood sugar on the morning of this investigation was higher than it had been on previous mornings. Beginning at 286 mg per hundred cubic centimeters it fell slowly not reaching a level below 70 mg per hundred cubic centimeters until 5 p. m. By 10 p. m. it was 45 mg per hundred cubic centimeters and it stayed close to this level until the following morning. Fasting was continued and although no more insulin was given the blood sugar remained below 50 mg per hundred cubic centimeters in this the second day until 9 p. m., thirty-eight hours after the injection of insulin. At 9 p. m. of the second day the very low value of 25 mg per hundred cubic centimeters was encountered and, fearing possible injury to the patient from such severe and long continued hypoglycemia

three meals a day from the general kitchen. The only restricted foods were candy and raw sugar. The patient was severely diabetic but her management had been satisfactory with a diet containing 167 Gm of carbohydrate and a single matutinal dose of 50 units of insulin-P a day. When the "general diet" was prescribed, the dose of insulin-P was increased to 60 units. The result is shown in chart 6. For the first two days glycosuria occurred but later the control was excellent. This probably is not the way to treat diabetes even with insulin-P. Undoubtedly other patients who have more severe forms of the disease would not have done so well with such an irregular arrangement. Yet it does suggest that in many cases insulin-P may permit less rigidity in dietary management than heretofore has been necessary to secure satisfactory therapeutic effects.

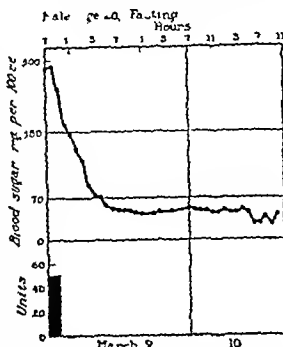


Chart 5—Effect of a single large dose of insulin protamine compound when food was withheld. Hypoglycemia existed from the ninth to the thirty-ninth hour after the injection of this dose of insulin. It was then corrected by administering food.

#### ESTIMATING THE DOSE OF INSULIN-P

For patients who previously are under control or nearly so, with divided doses of insulin-R, we have been making an immediate substitution of one dose of insulin-P, with or without a small dose of insulin-R, for the previous total daily divided dosage of insulin-R (chart 4). No untoward effect has been observed, probably because the final effectiveness of the insulin-P is delayed even beyond the day of its administration. If no insulin-R is used, a fairly intense glycosuria may occur for the first few days. This has not been accompanied by serious ketonuria. Gradually the daily excretions of dextrose diminish and usually by the sixth or seventh day control is as good as or better than it was before with multiple injections of insulin-R. At some

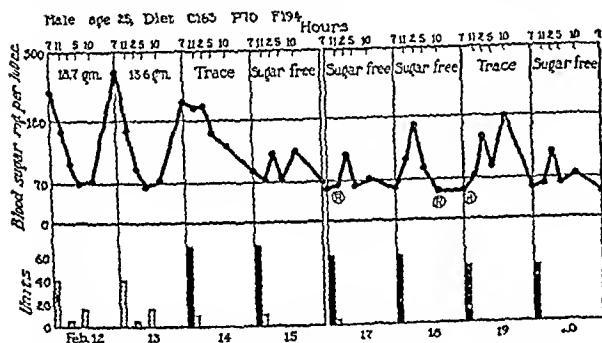


Chart 4—Satisfactory control of glycemic level with single doses of insulin protamine compound given before breakfast.

we supplied food until sugar appeared in the urine. No alarming symptoms accompanied this hypoglycemia although periodically, but not continuously after 7 p. m. the first day the patient complained of nausea, weakness, nervousness and headache. In the evening of the second day there was increased nervousness leading to restlessness and some confusion. Exaggeration of tendon and diminution of cutaneous reflexes were found at this time. They had been normal before. Amnesia did not develop.

#### THE DIET

Because of the better control of the level of the blood sugar with insulin-P we recently have deviated from our usual procedure and have provided diets that contained from 160 to 170 Gm of carbohydrate. Their content of protein has been about 70 Gm, and enough fat has been added to bring the calories to a number that would represent 50 per cent more calories than the patient would expend at rest. The diet has been given in three meals and recently the carbohydrate has been apportioned approximately on a 20-40-40 basis, in other words, the breakfast provides only about half as much dextrose as do the later meals. The slow development of the maximal effectiveness of insulin-P makes this desirable. Hagedorn giving insulin protamine compound in the evening divided his diet so that about 40 per cent of the carbohydrate came in the breakfast, 40 per cent in the lunch and 20 per cent in the supper.

In one case we departed radically from our usual dietetic procedure and permitted the patient to have

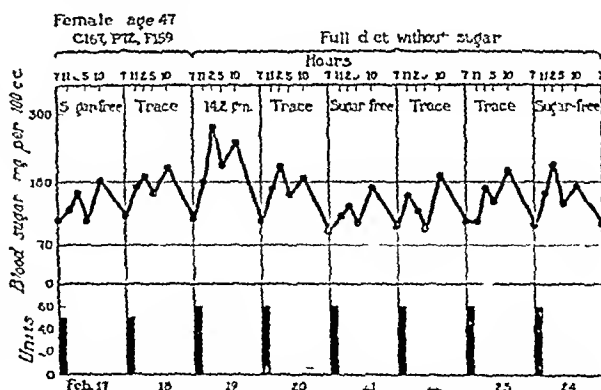


Chart 6—Satisfactory control of glycemic level in a case of diabetes with single doses of insulin protamine compound given before breakfast and a general diet.

time later smaller doses of insulin-P may suffice so that an actual saving of insulin is accomplished. Our results to date do not permit definite conclusions as to the amount of saving possible although in some cases the saving in unitage has amounted to more than 30 per cent. If the original dose of insulin-P is supplemented by small doses of insulin-R, the initial period of intense glycosuria is shortened or may be avoided.

When using insulin-P, one is aiming about seventy-two hours ahead. Changes in the dose of insulin-P in either direction are not accurately reflected in the level of the blood sugar on the day the change is made. This is illustrated in charts 7 and 8. The patient the curve of whose blood sugar is shown in chart 7 reacted to the point of amnesia on the morning of March 8, although three of the four single specimens of urine on the day before had contained sugar. Therefore the

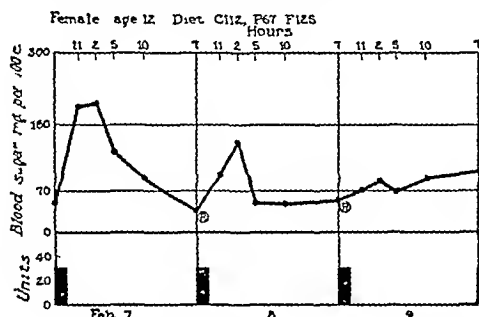


Chart 7—When insulin protamine compound is used the level of blood sugar before breakfast is the best index of the dose required. Hyperglycemia and glycosuria occurring later in the day do not preclude the possibility of reaction the following morning.

test for sugar of the morning urine is probably a more reliable simple index of the requirement of insulin-P than are the tests made during the day. The following working rule has been adopted recently. When the tests of the morning urine have shown no sugar for three days in succession and if reactions have occurred at night or in the early morning, the dose of insulin-P should be lowered. When the morning tests show sugar for three days in succession, the dose of insulin-P should be raised. Increasing or decreasing the dose by more than 5 units seldom is desirable.

It seems probable ultimately that the patient will take a basic dose of insulin-P, suited to his tolerance and usual activities, that this dose will be changed infrequently, and that small doses of insulin-R will be added as required to prevent occasional glycosuria provoked by infection or other causes. Occasionally patients who are being well controlled with insulin-P may, for a day or two, excrete a good deal of sugar without any apparent reason. This seems to have no bad effect and may be ignored unless it continues for more than two days. If it persists, either a few small supplementary doses of insulin-R may suffice for its control or, if the tests of urine passed before breakfast are positive, the dose of insulin-P should be increased.

Thus far we have not had experience in estimating the dose of insulin-P for patients who previously have not been treated with insulin-R. The slow acting nature of insulin-P would seem to make it unsuitable for the treatment of acidosis and possibly in most cases treatment will be begun with insulin-R and changed later to insulin-P.

7. More recently we have observed that insulin protamine compound is helpful in the management of diabetic acidosis. Thus to two patients admitted to the hospital with threatening coma the compound was given in a single dose of 30 units and the patients then were treated with regular insulin in the conventional manner. Less frequent doses of regular insulin subsequently were required than usually are necessary for the treatment of acidosis. The duration of effectiveness of a dose of regular insulin apparently is shortened by acidosis and unless regular insulin is given in frequently repeated doses intervals occur when the patient may be without the benefit of any insulin. Insulin protamine compound administered at the beginning of such treatment seems to tide over the intervals and to insure a continuous insulin effect. Similarly in cases complicated by acute infections which also shorten the duration of effectiveness of insulin protamine compound has been helpful—no to replace regular insulin but as an adjunct to it to insure continuous insulin activity.

## SITE OF INJECTION

Changing the site of injection or giving multiple injections simultaneously seems not to influence the effectiveness or speed of action of insulin-P. Our observations on this point are limited to one case. But with this patient, giving 65 units in one subcutaneous depot had the same effect as giving the same total dosage in four separate depots. Likewise no difference could be observed in the effect obtained, in one case, when the insulin was injected intramuscularly.

## REACTIONS

Partly because of an early ambition to maintain the sugar in the blood near normal levels at all times, and partly because of early unfamiliarity with the continued action of insulin-P remote from the time of injection, we have had occasion to observe rather numerous reactions, particularly in our earlier cases. These reactions have never been very severe, nor, in the cases treated in a routine manner, have we encountered any extreme degrees of hypoglycemia.

The reactions with insulin-P characteristically are less violent than those following the use of insulin-R. This probably is because the rate of decline of the blood sugar is so much more gradual. Their onset is insidious, but once developed they are more persistent and more likely to recur after treatment. Frequently we have heard patients complain of "feeling all tired out" or of having a vague sense of unrest or nervousness for which they can offer no explanation. There is less tendency to perspire than in the reaction from insulin-R. Paresthesia and anesthesia are experienced, particularly numbness about the mouth, such as is seen frequently in reactions to insulin-R. One patient spoke of tingling of the fingers and another said he felt dead from the hips down. Amblyopia and diplopia are common complaints. A dull headache may persist after

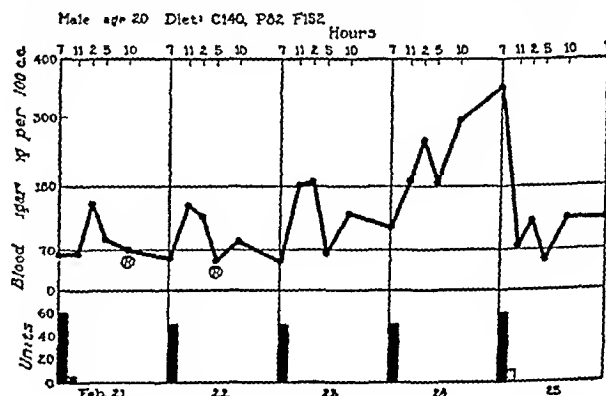


Chart 8—Loss of satisfactory control of glycemia from inadequate dose of insulin protamine compound. The inadequacy of the dose is not apparent until the third day. Previously satisfactory control had been secured with 60 units of insulin protamine compound supplemented with 5 units of regular insulin.

other symptoms have subsided. Amnesia characterizes reactions of greater severity. Convulsions have not been observed except in one case, the patient is a child who twice has had slight intermittent convulsive movements of the arms and legs in the early morning hours. In three cases nausea has accompanied the reaction but has disappeared on the administration of food.

The time of occurrence of reaction, after single morning doses of insulin-P, has been remote from a preceding meal. Some reactions have been at night.

These reactions were mild, but we feel that the dangers of even mild reactions of long duration should be emphasized.

The relief of the symptoms of reaction by the administration of small doses of sugar (from 5 to 10 Gm) may be temporary. Such a dose has been adequate only when the time until the next meal has been brief. Reactions occurring in the evening have been combated effectively by giving repeated small doses of sugar or, better, by giving some form of carbohydrate, such as crackers and milk, with a longer period of absorption.

#### SUBJECTIVE IMPROVEMENT

Several patients have commented that they felt fitter after starting their treatment with insulin-P. They arise from the night's sleep feeling more alert and they are stronger. They appear more alert. This has been noted especially in those cases graded 4+, in which previously, with insulin-R, satisfactory control had not been obtainable.

#### PRECAUTIONS

While our experience has led us to the belief that better therapeutic results are obtainable with insulin-P than were formerly obtained, it is not to be supposed that the new remedy can be used safely unless precautions are exercised. The right dose must be chosen and the diet ought to be supervised. This potent drug has a complicated action and it should not be dispensed casually. It offers a further challenge to the intelligence of the medical profession. If it is used unwisely, imperfect results or bad reactions may discredit it. Certainly at first no one should use it unless he places his patient in a hospital where continuous supervision can be maintained and facilities are available for testing the sugar in the blood. The patients must have been fully instructed regarding their diet, the recognition of the prodromes of reaction and the niceties of planning the size of their injections, before it will be safe for them to use this treatment in their homes.

#### SUMMARY

The immediate effect of insulin-P (insulin protamine compound) is much less than that of insulin-R (regular insulin). When the former is used alone and given as a single dose before breakfast the meals of the first few days provoke glycosuria but when the dose is properly adjusted the level of the blood sugar on successive mornings decreases progressively and the elevating effect of meals diminishes until by the end of from four to six days, a normal level of blood sugar may be attained even in cases of severest diabetes.

Supplementing insulin-P with small doses of insulin-R will shorten the period of obtaining control. Insulin-R should not be mixed in the same syringe or injected into the same site with insulin-P. It has not been necessary to continue the supplementary use of insulin-R after the first few days in the milder cases but probably in many cases such supplementary use of insulin-R will be desirable, especially in emergencies. Until more experience has been obtained it would appear that insulin-R will be the insulin of choice when quick action is desirable as in the treatment of acidosis.

Although insulin-P in many cases makes possible effective management of diabetes with only one administration of insulin a day and with less insistence on rigid control of the diet its careless use or disregard of the diet is attended with danger.

## GLYCOSURIA AND HYPERGLYCEMIA IN CORONARY THROMBOSIS

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AND

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The clinical association of diabetes mellitus and coronary disease has been an accepted fact for many years. Levine<sup>1</sup> in a study of 103 patients with angina pectoris, found that 68 per cent showed well defined diabetes. (In a second series of 145 similar cases he<sup>2</sup> found 23.7 per cent to have either glycosuria or known diabetes.) A study by Kahn<sup>3</sup> showed that 12 per cent of eighty-two patients complaining of angina pectoris had true diabetes and a similar investigation by Conner<sup>4</sup> revealed that 10 per cent of his patients with coronary thrombosis had diabetes.

The tendency of the arteries of diabetic patients to undergo marked sclerosis has long been known, attention having been called to the frequency in diabetes of peripheral gangrene and the presence of sclerotic vessels in limbs amputated for this reason. Warren<sup>5</sup> found thrombosis of the coronary arteries with recent or healed infarction of the heart muscle in 12 per cent of a large series of cases of diabetes that came to autopsy. Nathanson<sup>6</sup> in an analysis of seventy-four diabetic patients past the age of 50 found a 52.7 per cent incidence of coronary disease, as evidenced by severe arteriosclerosis with definite narrowing and marked obliteration of the lumen of one or more large branches. The same author in 249 consecutive autopsies on patients past the age of 50 found only 8.2 per cent showing similar changes. Hepburn and Graham,<sup>7</sup> studying by means of the electrocardiograph diabetic patients of all ages, found significant abnormalities in almost half of the cases which abnormalities for the most part were characteristic of coronary disease.

This association of diabetes and coronary closure has led many authors to look for a causal relationship between the two. Joslin<sup>8</sup> in 122 cases of angina pectoris associated with diabetes found that in 106 the onset of diabetes distinctly preceded the angina. In these cases he believed that the coronary sclerosis was secondary to the diabetes and that the duration of the latter was the important factor, since he found that diabetes of five years' duration or longer was practically always accompanied by some degree of arterial change. Joslin regarded the hypercholesterolemia of diabetes as being the responsible factor. While in those of advanced years there is the possibility that arteriosclerosis is the basis for the pancreatic changes in the young the evidence is very strong that diabetes has caused the sclerotic changes.<sup>9</sup> Root and Grubel<sup>10</sup> maintain that diabetes is always the primary disease.

From the Medical Service of Dr. Meyer A. Rabinowitz, Brooklyn Jewish Hospital.

1. Levine S. A. Angina Pectoris. J. A. M. A. 70: 928 (Sept. 10) 1922.

2. Levine S. A. Coronary Thrombosis. Medicine 8: 245 (Sept.) 1929.

3. Kahn M. H. Etiologic Factors in Angina Pectoris. Am. J. M. Sc. 172: 195 (Aug.) 1926.

4. Conner J. A. and Holt E. The Subsequent Course and Prognosis in Coronary Thrombosis. Tr. A. M. Physicians 45: 132 (1930).

5. Warren Shield. The Pathology of Diabetes Mellitus. Philadelphia Lea & Febiger 1904: 6-4.

6. Nathanson M. H. Coronary Disease in One Hundred Autopsied Diabetics. Am. J. M. Sc. 182: 495 (April) 1932.

7. Hepburn J. and Graham D. An Electrocardiographic Study on 100 Cases of Diabetes Mellitus. Am. J. M. Sc. 176: 752 (Dec.) 1928.

8. Joslin E. P. Arteriosclerosis and Diabetes. Ann. Clin. Med. 5: 1061 (June) 1927.

9. Nathan J. P. Arteriosclerosis in Diabetes. Ann. Int. Med. 3: 34 (July) 1930.

10. Root H. F. and Grubel A. Arteriosclerosis in Diabetes Mellitus. J. A. M. A. 96: 925 (March 21) 1911.

that calls forth the changes in the coronary vessels and argue against the two having a common etiology. They point out that most anginal attacks appear at an age when most diabetic patients already have had their disease for from eight to ten years. Scherf<sup>11</sup> makes an interesting comment in this regard, suggesting that the upper abdominal pain of diabetic precoma may at times be on the basis of coronary closure. Edelmann<sup>12</sup> recalls that during the war there was a decrease in the incidence of diabetes and coronary closure, and that since then both have increased.

#### GLYCOSURIA DURING ACUTE PHASE OF CORONARY THROMBOSIS

The occurrence of glycosuria during the acute phase of coronary thrombosis has gradually become more widely recognized. In 1929 Levine,<sup>2</sup> discussing cases of coronary thrombosis which showed sugar in the urine during at least one stage of the disease, mentions that in one fourth of these patients the glycosuria was present only during the episode of acute closure. Two years later Cruickshank<sup>13</sup> described an interesting case of coronary thrombosis with extensive myocardial infarction in which the patient developed a hyperglycemia and glycosuria severe enough to require 40 units of insulin a day, and yet in spite of progressive cardiac failure the glycosuria and hyperglycemia entirely disappeared.

In an analysis of nine cases of coronary closure, Scherf<sup>14</sup> found one instance of long-standing diabetes, two which showed neither hyperglycemia nor glycosuria and six which revealed transitory glycosuria and hyperglycemia. Of the latter six cases, the first presented a blood sugar of 230 mg. and 0.5 per cent sugar in the urine on admission, but by the third day both the blood and the urine had returned to normal. A dextrose tolerance test performed on this patient gave normal results. His sixth case presented a very similar picture except that, although the fasting blood sugars were normal, a dextrose tolerance test revealed a high blood sugar even after two and one-half hours. No tolerance tests were performed on the other patients. Scherf was interested mainly in the diagnostic significance of this phenomenon, calling attention to the fact that the frequency of transitory glycosuria in coronary thrombosis was even greater than Levine suggested.

Gottsegen<sup>15</sup> reported a case in which previous specimens of urine were always negative for sugar and after several weeks of anginal pains a definite coronary closure developed. At the onset of the thrombosis the urine showed small amounts of sugar and the fasting blood sugar was elevated. Gradually the glycosuria disappeared only to reappear with each attack of coronary thrombosis, of which this patient had several, and again to disappear completely during the free intervals. Edelmann<sup>12</sup> corroborating the evidence of Levine and Scherf, found that of fifty-six cases of coronary closure twenty-three showed glycosuria, of which only twelve presented manifest diabetes. Eppinger<sup>16</sup> discussing acute coronary closures, speaks of the not infrequent occurrence of glycosuria and hyperglycemia at the beginning of the attack.

#### MEANING OF THIS GLYCOSURIA

What does this transient glycosuria in coronary closure represent? Levine<sup>2</sup> felt "that glycosuria is a common occurrence during the acute stage of coronary thrombosis, that it may be only transitory, and that it need not indicate any important diabetic state, that it often proves to be a concomitant of the shock and terrific pain that exists with this condition." Cruickshank,<sup>13</sup> on the basis of the severe arteriosclerotic changes found in the pancreas in his case, believed that this underlying sclerosis was the important common factor. On the other hand, Scherf,<sup>14</sup> while he felt that sclerosis of the pancreatic vessel might heighten the degree of glycemia and glycosuria, believed that the blood pressure changes were of primary importance, pointing to the initial rise in blood pressure with the appearance of glycosuria and its disappearance with the subsequent fall in blood pressure. He did not regard the increased production of epinephrine or the fever resulting from the absorption of protein products as factors. However, he did agree that drugs which were administered, such as morphine, caffeine, theobromine with sodium salicylate, and epinephrine, could call forth a hyperglycemia. He felt that another factor of contributory importance might be the acute decrease in the minute output of the heart and the thereby resulting carbon dioxide overloading of the blood and tissues making for general tissue acidosis. Since Scherf had cases in which neither pain nor shock was present he was unable to agree with Levine's interpretation of the glycosuria.

Gottsegen<sup>15</sup> regarded these patients as potentially diabetic and thought that the high mortality of coronary thrombosis prevented these subjects from developing true diabetes. This author, discussing reflex stimulation of the adrenals and Roger's<sup>17</sup> theory of embolization to the cerebral arteries regarded the duration and severity of the glycosuria and hyperglycemia as speaking against these mechanisms. He believed in a pancreatic origin, because in many cases a severe sclerotic change is found in the pancreatic arteries as part of a generalized arteriosclerosis, similar to Cruickshank's<sup>13</sup> case. He considered the transitory glycosuria the result of a reflex spasm of these already diseased vessels, the spasm resulting from the shock associated with coronary closure. He felt that when irreversible damage to the pancreas resulted there arose a chronic metabolic disturbance, i. e., diabetes mellitus.

Eppinger<sup>16</sup> felt that the absorption of the products of protein destruction is an important factor by favoring a pouring out of epinephrine. He did not regard pain as playing a part, since glycosuria is not seen in other conditions associated with pain.

Edelmann,<sup>12</sup> who often found a disturbance of carbohydrate metabolism in coronary disease, believed that the cardiac infarct resulting from an acute coronary closure led to the latent diabetes mellitus becoming manifest. He felt that diabetes not only causes sclerosis but also leads to thrombus formation, for at least one third of his diabetic patients showed absent peripheral leg pulsations, whether or not they gave evidence of intermittent claudication. While he admits other causative factors in coronary disease, he concludes that "the main thing seems to be a diabetic type of metabolism—not only in those with manifest diabetes but also apparently in those with latent diabetes." Analyz-

11 Scherf, D. quoted by Edelmann.  
12 Edelmann, A. *Leber die Bedeutung der Glykosurie und Hyperglykämie bei Erkrankungen der Koronararterien*. Wien Klin Wchnschr 47: 165 (Feb. 9) 1934.

13 Cruickshank. *Coronary Thrombosis and Myocardial Infarction with Glycosuria*. Brit. M. J. 1: 618 (April 11) 1931.

14 Scherf, D. *Hyperglykämie und Glykosurie bei Coronarthrombose*. Wien Klin Wchnschr 46: 69 (Jan. 20) 1933.

15 Gottsegen, G. *Coronarthrombose und Diabetes*. Arch. f. Verdaunungskr. 53: 36 (Jan.) 1933.

16 Eppinger, H. *Die Coronarthrombose*. Wien Klin Wchnschr 47: 210 (Feb. 16) 1934.

17 Roger, G. H. cited by Villaret, M. *Les hypertension artérielles papovastiques*. Pres. med. 39: 393 (March 18) 1931.

ing fifteen cases of coronary thrombosis, Edelmann found that seven were manifest diabetes, four gave typical diabetic blood sugar curves, and two others gave an abnormal dextrose tolerance response. Only two of the fifteen gave normal results during a sugar tolerance test. Edelmann, however, does not mention whether these observations were made during the acute phase or long after the closure. On the basis of latent diabetes Edelmann feels that the lowered blood pressure may lead to decreased circulation of blood through an already diseased pancreas, with the resulting decreased insulin production thus accounting at least in part for the hyperglycemia and glycosuria.

#### SUGAR TOLERANCE TESTS IN CORONARY THROMBOSIS

To gain insight into the meaning of this glycosuria during coronary closure, we undertook to study the carbohydrate tolerance in a group of patients who had coronary thrombosis. All gave evidence either clinically or electrocardiographically of having had a coronary closure, and in most instances both types of evidence were available. All cases in which there was a history of diabetes mellitus or which showed glycosuria at any time other than during the acute stage of coronary thrombosis were excluded. Our material consisted of twenty-one patients about evenly divided as to sex, ranging in age from 34 to 76 years, most of them being in the sixth decade of life. We have divided them into two large groups depending on whether or not they showed altered sugar tolerance, the first group permitting of several subdivisions. All tests on patients in the first group with three exceptions were performed within two weeks of their last coronary closure.

##### Abnormal Group 1 (fifteen cases)

A Four patients whose fasting blood sugar values were higher than the accepted normal and who may be considered as having true diabetes even though they failed to spill sugar in the urine. One of these cases may be questioned since the blood sugar reached normal limits by the end of the test period.

B Six patients with normal fasting blood sugars but with typical diabetic responses to the dextrose tolerance test.

C Two instances in which the blood sugar after the administration of dextrose rose to an abnormal height but by the end of the test showed values that were very low. In one of these patients (B G) hypoglycemic symptoms developed after the third hour.

D One instance in which the sugar tolerance curve stayed within normal limits during the peak of the curve but failed to reach a normal value by the end of the test.

E One case in which the value at the end of one and three-quarters hours exceeded normal but in which the blood sugar returned normal by the end of the test period and one instance in which a high value was reached at the end of three quarters hour but in which no further blood specimens were collected.

##### Normal Group 2

Six patients with normal dextrose tolerance tests. Analysis of this group reveals two patients who had their coronary closure five years prior to the date of the dextrose tolerance test, one, three and a half years prior, one two years prior, one in whom the date of his coronary closure was unknown, since he gave no positive history and showed only typical electrocardiographic changes of old coronary closure and one in whom two months had elapsed since his coronary attack. This patient at the time of his coronary thrombosis had a fasting blood sugar of 140 mg.

Since there are included in this series of twenty-one cases only two instances of hypertension, two of obesity and one of mild hyperthyroidism, these factors need not be regarded as affecting our results.

#### COMMENT

Our investigation was undertaken with the purpose of determining the frequency of disturbed carbohydrate tolerance during the acute phase of coronary closure and to prove or disprove the existence of a latent diabetes in these cases. If these individuals possess a basic decreased carbohydrate tolerance, as Edelmann believes, we feel correct in assuming that this diminished tolerance would persist long after the acute effects of the coronary closure have disappeared.

Of the twenty-one patients investigated, 71 per cent gave evidence of abnormal sugar tolerance, but when we consider only those twelve cases which were examined within two weeks of their coronary closure, we find an abnormal sugar response in every instance. And, further, when it is remembered that all known cases of diabetes were excluded from this series, it

#### Results of Tests

Group	Name <sup>b</sup>	Age	Sex	Fasting	Sugar Tolerance Test <sup>a</sup>			Glyco- suria <sup>c</sup>
					½ Hr.	1½ Hr.	2½ Hr.	
I A	A B <sup>d</sup>	60	♀	182				
	T S	68	♀	173	2.1	210	203	None
	F B	67	♀	1.6	2.1	166	93	None
	I M	76	♀	134	2.6	2.0	310	None
I B	J M	70	♂	131 <sup>e</sup>	195	224	254	None
	I W	59	♂	104	310	414	176	Pre ent
	F R <sup>f</sup>	45	♀	62	160	149	200	None
	S S <sup>g</sup>	68	♀	106	166	176	204	Present
	M M	70	♂	113 <sup>h</sup>	161	195	145	None
	C D	65	♂	114 <sup>i</sup>	180	123	1.6	Present
I C	B C	34	♂	103	212		56	Pre ent
	H C	62	♂	104	1.5	200	85	Pre ent
I D	H P	44	♂	100 <sup>j</sup>	1.3	147	1.3	None
I E	V G <sup>k</sup>	44	♂	65	151	260	107	None
	P G <sup>l</sup>	65	♀	90	217 <sup>j</sup>			None
II	N G	62	♂	110 <sup>k</sup>	1.1	141	133	None
	P B	53	♂	108 <sup>j</sup>	1.1	75	93	None
	M S	60	♂	103 <sup>j</sup>	118	121	105	None
	R S <sup>d</sup>	60	♂	109 <sup>m</sup>	129		96	None
	I R	65	♂	127 <sup>n</sup>	1.8	140	127	None
	S H	65	♂	85 <sup>o</sup>	131	110	97	Present

a Folin Wu method normal values. Fasting blood sugar of under 120 mg. which after ingestion of 100 Gm. of dextrose stays below 180 mg. and reaches normal by the end of two and three-fourths hours.

b Tests were performed within two weeks of coronary closure unless otherwise noted.

c Glycosuria during sugar tolerance test.

d Hypertensive.

e Fasting blood sugar prior to day of test was 100 mg.

f Obese.

g Mild hyperthyroid.

h Three months since coronary closure.

i Four years since coronary closure.

j Only 50 Gm. of dextrose given.

k No history of coronary closure but positive electrocardiographic tracings.

l Five years since coronary closure.

m Twenty-two months since coronary closure.

n Two months since coronary closure, fasting blood sugar at time of coronary closure 140 mg.

o Three and a half years since coronary closure.

becomes evident that soon after the occurrence of a coronary closure the finding of an abnormal sugar tolerance curve is the rule. Of the nine cases in which a significant interval existed between the time of coronary closure and the dextrose tolerance test, only three gave an abnormal response. That 67 per cent normal curves were found in this group in which an interval was permitted to elapse while universally abnormal curves existed in the acute group, would argue against the existence of a latent diabetes as the predominant factor and speak for a temporary mechanism.

We believe that a disturbance involving the vegetative nervous centers of the brain, as has also been suggested by Hausner and Hoff<sup>1</sup> is the important factor. The transient nature of the disturbed carbohydrate

<sup>1</sup> J. Hausner and F. Hoff: *Med. Klin. Wochenschr.* 1933, 79, 1933.

tolerance and its occurrence in cases in which neither pain nor shock was prominent would be consistent with this explanation. The appearance of glycosuria in numerous types of brain disorders, such as concussion, hemorrhage and tumor, would lend support to this belief. In this connection mention should be made of Hausner and Hoff's<sup>18</sup> finding an edema of the medulla and lower pons in patients with coronary closure dying early in their attack. These investigators were able to produce the same type of brain edema in the majority of their ligations of the coronary arteries in dogs. The careful observation of cases of coronary thrombosis for medullary manifestations, and the correlation of these changes with the results of studies of the carbohydrate metabolism, may offer important evidence on this point.

A detailed discussion of the importance of the finding of a diminished sugar tolerance during coronary closure would lead too far afield and must be left for a future time. However, one cannot help but note some of the clinical implications. Insulin has been shown to be a drug that must be used with the greatest care in coronary closure.<sup>19</sup> It is therefore most important to realize the existence of an underlying altered carbohydrate metabolism in these cases and to differentiate carefully coronary thrombosis with transient hyperglycemia and glycosuria from coronary closure and true diabetic acidosis, and from diabetic acidosis with electrocardiographic changes.<sup>20</sup> As Scherf<sup>21</sup> has pointed out, the question of a true diabetes mellitus cannot always be settled with certainty at the time of the attack of coronary thrombosis. Easily understood are instances in which diabetic patients went into coma at the onset of coronary closure,<sup>21</sup> as well as the marked improvement in their diabetic status toward the end of their attack.<sup>22</sup> Our study reemphasizes the importance of doing blood sugar estimations when the urine is negative for sugar. The importance of finding the presence of true diabetes is brought out by Root and Graybiel.<sup>10</sup> They found that the prognosis of angina pectoris is worse in the diabetic patient and that those diabetic patients who died in the first year of their angina had received very inadequate treatment for their diabetes.

#### SUMMARY AND CONCLUSIONS

1 Glycosuria and hyperglycemia often occur during the acute stage of coronary thrombosis not preceded by diabetes.

2 In an effort to evaluate the influence of latent diabetes on this glycosuria and hyperglycemia sugar tolerance tests were done in a series of nondiabetic cases of coronary thrombosis. All the recent cases of coronary thrombosis gave an abnormal response to the sugar tolerance test. Sixty-seven per cent of the cases of old coronary closure gave normal sugar tolerance curves. We therefore believe that the glycosuria and hyperglycemia of the acute stage of coronary thrombosis is not dependent on a latent diabetes.

3 A disturbance in the vegetative centers of the brain is offered as an explanation for the transient nature of the glycosuria, hyperglycemia and abnormal sugar tolerance.

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## SELF-PERFORMED OPERATIONS

WITH REPORT OF A UNIQUE CASE

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Wounds self inflicted in suicidal attempts, and self mutilations by the obviously insane, the religious fanatics, the malingerers and the professional beggars of certain countries, are too well known to merit comment. When these are excluded, there remains a group of individuals known to have subjected themselves to their own surgery for therapeutic reasons, either actually or supposedly indicated. Recorded cases of this type would seem to fall into one of perhaps four major groups:

1 Surgeons who have operated on themselves

2 Normal minded individuals who have been forced by severe pain or in the absence of medical attention to perform autosurgery.

3 The sexual perverts and those suffering from an acute psychosis intense sexual excitement or anger resulting in self inflicted mutilations or amputations, usually of the genitalia.

4 Those who, because of utter ignorance or feeble mindedness, have attempted the surgical correction of some obvious disease or abnormality.

#### GROUP 1

One of the first recorded cases in which a physician operated on himself was that of the well known Paris surgeon Reclus,<sup>1</sup> who in 1890 removed a tuberculous lesion of a finger of his right hand and curetted the wound, using cocaine for a local anesthetic. Reclus reported two other cases, a physician who removed his own ingrown great toe nails, and a Turkish surgeon, Mehmed-Said who resected his own scrotum for a large varicocele.

Gille<sup>2</sup> in 1933 collected several cases of professional autosurgery from the literature. These included a herniotomy under local anesthesia by a Rumanian surgeon, Fzaicou, in 1909, a similar operation by a Frenchman, Regnauld, in 1912, and appendectomies by two Americans Alden and Kane. In "Anomalies and Curiosities of Medicine" Gould and Pyle<sup>3</sup> mention a French surgeon M. Clever (?) de Maldigny, who removed a calculus from his own bladder, aided by a mirror. Probably several more similar cases have occurred. Regardless of any difference of opinion as to what might constitute the indications for a surgeon to remove his own appendix it should be noted that in the foregoing cases no question was apparently raised as to the sanity of the patients.

#### GROUP 2

Numerous references can be found to accounts of rational individuals who, driven to desperation by pain, or in the absence of medical attention, have performed autosurgery. Cesarean section by the patient herself because of intolerable pain was reported by Cowley,<sup>4</sup> and other cases have been described. Self-performed cystotomy and lithotomy because of severe pain are

19 Parsonnet A. E. and Hyman A. S. Insulin Angina. *Ann Int Med.* 4: 1247 (April) 1931.

20 Barnes A. R. Electrocardiogram in Myocardial Infarction. *Arch Int Med.* 55: 427 (March) 1935.

21 Lepehne G. Zur Frage der Koronarthrombose. *Med. Klin.* 30: 1589 (Nov. 30) 1934.

22 Ornstein P. Ueber einen Fall von Koronarverschluss mit folgendem Praeloma diabeticum. *Med. Klin.* 29: 427 (March 24) 1933. Scherf<sup>21</sup>.

From the Surgical Service Cook County Hospital.

1 Reclus P. Local Anesthesia and Surgeons Who Operate on Themselves. *Presse med.* Aug. 17, 1912.

2 Gille M. Autosurgery. *Echo med. du nord* 37: 45, 1933.

3 Gould G. M., and Pyle C. A. *Anomalies and Curiosities of Medicine*. Philadelphia: W. B. Saunders Company 1901, p. 708.

4 Cowley Thomas. *London M. J.* 6: 366, 1785.

5 Gould and Pyle. *Anomalies and Curiosities of Medicine* p. 132.



known to have occurred,<sup>6</sup> and Patterson<sup>7</sup> described a Scotchman who repeatedly applied the actual cautery to his skin for relief of severe pain from hip-joint disease. Explorers and soldiers have also reported minor amputations and other surgery of necessity that was self performed because medical care was not available. Such cases are of course rare in the twentieth century.

## GROUP 3

Sexual perversion is a psychopathic state and undue meditation over the generative function has resulted on numerous occasions in self mutilation. Gerty<sup>8</sup> has seen two patients with self-performed orchidectomies, both of whom were insane. Bradley<sup>9</sup> reported the case of a man who was sexually hyperactive and a masturbator. At the age of 40 he removed both his testicles and a few years later amputated half his penis. The older literature contains records of many similar cases.<sup>10</sup>

Atypical forms of encephalitis may give rise to localized pain with delirium such as that described by Pardee<sup>11</sup> and Bassoe<sup>12</sup> and illustrated by Conn's case<sup>13</sup> in which a girl of 21 performed self mutilation of her hand. Illustrations of self mutilation by patients with various types of encephalitis have been reported recently,<sup>14</sup> and possibly many of the earlier cases were examples of the effects of a similar but overlooked form of a cerebral pathologic condition.

Another group of self castrations and mutilations have occurred in individuals who were probably sexual perverts, but this could not be definitely proved. Jeanselme and Schulmann<sup>15</sup> report the case of a boy aged 12 years, who produced total necrosis of the glans penis, probably by wrapping threads around the organ, a known form of masturbation. Batzdorff<sup>16</sup> described the case of a man, aged 55, who suffered from urethral stricture. He amputated the penis and then removed both testicles through a second incision afterward suturing the wounds. The patient put the blame for this deed on a fit of anger, but, because of the secondary castration and the patient's feminine appearance, the author believed him to be suffering from a sexual aberration.

Of greater interest are those cases of self mutilation resulting from temporary emotional upheavals in normally rational individuals. Most of the recorded cases of this nature are the results of intemperance or of anger at being impotent. Gould and Pyle<sup>17</sup> mention several examples of the former. An excellent example of this type is a case studied by Dr. J. J. Kearns<sup>18</sup> coroner's pathologist at the Cook County Hospital, who kindly supplied the following information:

A healthy man, aged 46 accumulated some money and came to the city on a long anticipated vacation. He spent the evening

drinking in the company of a prostitute and was quite intoxicated when he retired with her. For almost an hour he was unable to obtain an erection, whereupon the woman departed. Shortly thereafter erection occurred. Intoxicated and disgusted he seized a razor and with two strokes completely amputated the penis both testicles and most of the scrotum. He died of the effects of hemorrhage several hours after his removal to a hospital. Nothing in his history or physical condition would indicate any insanity or sexual aberration.

## GROUP 4

Major autosurgery performed by the ignorant or feeble-minded individual for the cure of some obvious disorder is rarely encountered. The following case concerns one such person who twice subjected himself to major surgery with eventual recovery.

A man, aged 49, a Czechoslovakian, was admitted to the Cook County Hospital at 7 p. m., Aug. 29, 1935, suffering from a self inflicted wound in the right inguinal region through which was protruding one end of the severed small intestine.

He was operated on shortly after, local anesthesia of 1 per cent procaine hydrochloride being used. Examination disclosed



Fig. 1—Infected inguinal wound nine days after self performed bowel resection. This also shows the old self performed castration scar of the scrotum at the base of the penis and the absence of the right testicle.

an irregular ragged incision about 9 cm. long parallel with and above the inguinal canal starting about 2 cm. from the root of the penis. The fibers of the external oblique muscle were cut in their long axis, and there was an opening about 3 cm. in diameter into the peritoneal cavity. An open loop of injected and edematous small intestine protruded from the wound from right to left. The mesentery was torn for a distance of about 6 cm. upward and to the left. By following this tear the other end of the intestine was found in the abdomen. It was slightly injected but not edematous and not discharging intestinal contents. Its open end could barely be brought out of the wound, and traction on it caused pain and vomiting. These observations and the appearance of the mucosa convinced us that the part of the intestine was the upper part of the jejunum, probably not more than 6 or 8 inches (15 or 20 cm.) from its origin. The peritoneum at the site of the incision was thick, tough and somewhat scarred as if it were part of a hernial sac but no true sac could be identified. About half an ounce of intestinal contents resembling undigested vegetable greens contaminated the wound but there was none found in the abdomen. The spermatic cord was not seen. Both ends of the intestine were raised where they had been severed but showed no evidence of scarring or constriction.

The operative procedure was as follows. The wound and both ends of the intestine were cleaned and debrided some-

6 Gille<sup>2</sup> Gould and Pyle. *Anomalies and Curiosities of Medicine* p. 708.

7 Patterson. *Glasgow M. J.* 1: 408, 1889.

8 Gerty, F. J. Personal communication to the authors.

9 Bradley, J. M. A Case of a Self-Made Eunuch. *Bull. St. Louis M. Soc.* 28: 133, 1933.

10 Courtney, J. E. Two Cases of Self-Castration. *M. Rec.* 58: 596, 1900.

11 Pardee. *Arch. Neurol. & Psychiat.* 4: 24 (July), 1920.

12 Bassoe. *Arch. Neurol. & Psychiat.* 4: 24 (July), 1920.

13 Conn, J. H. Self-Mutilation in Case with Dorsal Root S. Syndrome. *J. Nerv. & Ment. Dis.* 75: 251 (March), 1932.

14 Goodhart, S. P. and Savitsky, N. Self-Mutilation in Chronic Encephalitis. *Am. J. M. Sc.* 155: 674 (May), 1919.

15 Jeanselme, F. and Schulmann, E. Case of Automutilation in a Boy 12 Years Old. *Encephale* 1: 310 (June), 1921.

16 Batzdorff, E. Total Self-Emasculation. *Beitr. z. klin. Chir.* 177: 95, 1927.

17 Gould and Pyle. *Anomalies and Curiosities of Medicine* p. 734.

18 Kearns, J. J. Personal communication to the author.

what The mesenteric tear was freed from adherent clots and then closed with catgut The intestine was rejoined by an end-to-end anastomosis, a double row of catgut being used with a few linen tension sutures The peritoneum was closed tight with catgut and interrupted catgut sutures were used to close the external oblique fascia Silkworm-gut apposed the skin edges, and drains were inserted into the subcutaneous space and into the inguinal canal

The postoperative course was satisfactory A liquid diet was given on the fifth day and a soft diet on the seventh A superficial wound infection developed with some fever but at no time was there abdominal distention, vomiting evidences of obstruction, or peritonitis At the end of three weeks the wound was completely healed, the patient was eating a regular full diet, and the bowels were moving regularly

Figure 1 shows the wound nine days after operation, at which time the superficial infection was most marked It also shows the scrotal scar from the previous operation and the absence of the right testicle

Although the patient had been in this country twenty-one years, he spoke English poorly and the complete history was later obtained from the patient and from other sources About two months before admission he suffered from swelling and pain of the right testicle We could not discover any cause for this Three friends had had abdominal operations and had minimized their seriousness At one time he worked as a janitor for a surgeon, and he had also seen animals castrated Being unable to pay a surgeon's fee he performed a right orchidectomy on himself, using a pocketknife which he had



Fig. 2—The 115 cm loop of jejunum self removed by the patient shown in figure 1

cleaned and sharpened He insisted that his only reason for doing so was the conviction that an operation was necessary, for which he was unable to pay He was unaware that charity service was available The scrotal operation was quite painful but there was no excessive bleeding and he made no attempt to suture the wound or seek medical care It healed slowly and was still incompletely healed at one end when first examined by us

For several months he had also suffered from a right direct (?) inguinal hernia for which he was once examined by a physician who advised him to wear a truss

The morning of August 29 the hernia was causing an aching pain Encouraged by his previous success he again operated, making the incision described and apparently opening the sac of a direct hernia He pulled out a loop of intestine and finding an area that looked rotten cut it off He returned to bed but arose later and walked about 2 miles to the office of Dr Norbert Leckband who ligated two bleeding vessels and sent him by ambulance to the Cook County Hospital where the operation described was performed about eleven hours after the injury

Dr Leckband inspected the patient's home and found much blood in the kitchen and on the bed He also found the resected loop of intestine (fig 2) which he kindly delivered to us It consisted of a segment of upper small intestine (jejunum) which after fixation in formaldehyde measured 115 cm (about 4½ inches) in length There were small hematomas in the serosal coat but both gross and microscopic examinations revealed no chronic lesion or evidence of incarceration or strangulation

September 19 the patient was transferred from the surgical service to the Psychopathic Hospital, where he was studied for one month Stanford-Binet mental tests resulted in his being given an intelligence quotient of 41.5 and a mental age of 6 years 8 months This would classify him as a high grade imbecile or a low grade mental defective His basal age was 4 years, although he passed five tests at year 5, three tests at year 6, five tests at year 7, two tests at year 8, and one test at year 9 He was cooperative attentive and polite His employer was interviewed and reported that he had worked in a green house and nursery for fifteen years, living in a small house on the property He was a good worker and dependable, took good care of his living quarters and prepared his own meals He drank occasionally but never became noisy or troublesome His employer and neighbors regarded him as a simple minded individual but not insane He had a wife and two children in Czechoslovakia and was on a list of aliens to be deported His employer was perfectly willing to have him return and the patient was discharged to be under his observation Comments and diagnoses by the attending staff of the Psychopathic Hospital on the patient were as follows

Dr Clarence Neymann "Mental defective, not committable, a grand example of what a primitive mind will do under certain circumstances" Dr Morris Braude "Probably feeble-minded by our standards but not by his own—not committable" Dr Ralph Hamill "Mental defective, as good as any" Dr Francis J Gerty "Feeble-minded, not committable"

#### COMMENT

This case would seem to be unique in medical annals, as none other quite like it has been recorded to our knowledge One somewhat similar, but probably belonging in group 3, was described by Osinga,<sup>19</sup> who examined the body of a Javanese boy, aged 13 years, who had cut open a scrotal hernia and resected two portions of small intestine The boy was apparently normal mentally until a scrotal hernia developed, which caused mental disturbances because of his fear that he would not "attain manhood" It was during a period of depression that he operated on himself with a penknife His cries brought relatives, who carried him to a distant hospital, but he died on the way of hemorrhage, about four hours after the mutilation

The case here reported would seem to be an outstanding example of group 4 previously mentioned The patient had no demonstrable psychosis or sexual perversion His self-performed operations were undertaken for what seemed, to his simple mind, to be good reasons The case is also remarkable in that the patient completely recovered after two separate self-performed major operations, castration and bowel resection, the former without any medical attention and the latter with surgical anastomosis eleven hours after the injury

718 West Sixty-Third Street

19 Osinga, D. Case of Self Operation (Bowel Resection) *Geneesk tijdschr v Nederl Indie* 72: 1540 (Oct 25) 1932

**Loss of Appetite and Vitamin B**—In cases of severe deprivation of vitamin B the loss of appetite becomes a serious matter In fact the condition of vitamin B deficiency is very largely one of starvation from loss of interest in food Often the lost appetite has been restored with dramatic promptness upon giving vitamin B either in the form of a natural food or of a concentrate It is a true effect upon appetite as a function of the body and not merely a matter of making the food appetizing for when the vitamin is given separately the experimental animal will return with appetite to the same food which it had previously refused To what extent it is feasible and desirable to stimulate the appetites of patients by administration of artificial concentrates of vitamin B is a problem for the physician—Sherman H C Food and Health New York Macmillan Company 1934

PERMANENT PIGMENTATION FOLLOW-  
ING APPLICATION OF IRON SALTS

FOR THE TREATMENT OF IVY POISONING

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AND

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In 1873 White<sup>1</sup> first called attention to the use of iron salts in the treatment of ivy poisoning. In 1886 Browning<sup>2</sup> described the use of ferric chloride in the treatment of rhus poisoning, but its popularity was greatly advanced by the work of McNair<sup>3</sup> in 1921



Fig. 1—Front view of patient showing one of the largest solid areas of pigmentation.

Many others<sup>4</sup> have attested the usefulness, harmlessness and efficacy of preparations of iron salts in both the treatment and the prophylaxis of rhus poisoning, some authors have gone so far as to suggest the remedy as the first choice in the chemotherapy of rhus dermatitis.

The prevalence of rhus poisoning and the apparent rarity of complications in cases treated by iron salts prompts the report of these with their unusual sequelae.

## REPORT OF CASES

CASE 1—Miss M. F.,<sup>5</sup> an American aged 46, a writer presented herself for consultation to one of us (J. S. T.) Sept. 10, 1935, with evidence of an asymmetrical bilateral and irregular group of pigmented lesions, located on the face, neck, upper part of the chest, and forearms. The lesions were fairly circumscribed, uniform smooth and slightly depressed varying from 1 to 2 mm. in diameter, and one large lesion on the left side of the upper lip measured 3 by 4 cm. The lesions varied

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<sup>1</sup> White, J. C. On the Action of Rhus Venenata and Rhus Toxicodendron upon the Human Skin. New York M. J. 17: 235-249, 1873.

<sup>2</sup> Browning, A. G. M. Rec. 70: 222, 1886.

<sup>3</sup> McNair, J. B. A Contribution to the Chemotherapy of Rhus Dermatitis and Tentative Method for Treatment. Arch. Dermat. & Syph. 3: 802-808 (June), 1921.

<sup>4</sup> The following include:

Clock, R. O. Treatment of Rhus Dermatitis with Pot. on Ivy Extract. J. M. Sc. New Jersey 22: 344-349 (Sept.), 1925.

McNair, J. B. Poison Ivy. Botany Leaflet 12. Field Museum of Natural History, 1926.

Wood, H. C. Jr. Sumac and Poison Ivy. Philadelphia College of Pharmacy & Science 6: 1927-1928.

Loefer, D. The Colloidal Nature of Iron Scale Salts. J. Am. Pharm. 15 (Feb.), 1929.

Byram, A. T. Pot. on Ivy. Control. Canad. Pub. Health J. 22: 291-292 (June), 1931.

Ivy Poisoning and Iodine Queries and Minor Note. J. A. M. A. 97: 41 (Aug. 11), 1931.

Iron Chloride Solution is Good Treatment for Poison Ivy. Hygeia 10: 71 (Aug.), 1932.

<sup>5</sup> Presented before the New York Dermatological Society by Dr. E. F. Traub in October 1935.

from a light brown to a deep copper color. They showed no evidence of infiltration and were noninflammatory. No subjective symptoms were present.

Aug. 14, 1935, the patient was exposed to various leaves and grasses in a wooded section of the country. When she sat down to rest she noticed 'hive-like lesions' on the left forearm preceded by needle-like pains. The next morning she noticed a 'cluster of red spots' on the left side of the neck and over the left side of the upper lip. A calamine ointment was then applied until the next day, when her face and neck began to swell. August 16, wet dressings of a ferrous sulfate solution were prescribed and applied to the lesions for twenty-four hours, without relief of symptoms. This was discontinued and wet dressings of a 5 per cent solution of ferric chloride in a half and half mixture of alcohol and water were ordered, and she was also advised to puncture the vesicles that had formed in the interim. After applying the ferric chloride solution to the lesions which now were denuded of epidermis the patient states that her skin took on the appearance of a colored person's with a diffuse discoloration and pigmentation of the affected parts. The use of this solution was then discontinued and a calamine lotion used until the acute stage had completely subsided, leaving the pigmentation described.

With a punch biopsy instrument a small piece of tissue was removed from a pigmented area on the left forearm. The histopathologic report on this tissue was as follows:

There was a slight edematous vacuolization of many of the prickle cells and a moderate edema and dilatation of the blood vessels of the upper corium. The inflammatory response was slight. A large number of chromatophores was to be found about the blood vessels and between the collagen fibers of the upper corium. Perl's stain showed blue granules in the chromatophores. The diagnosis was dermatitis with deep seated pigmentation.<sup>6</sup>

The remaining laboratory studies were essentially negative. A blood count revealed platelets, 310,000; hemoglobin, 85 per cent; grains of hemoglobin, 12 grains per hundred cubic centimeters; total red blood cells, 4,000,000; total white blood cells, 7,000; differential count: lymphocytes, 45 per cent; polymorphonuclear leukocytes, mature, 52 per cent; monocytes, 1 per cent; eosinophils, 2 per cent; and basophils, 0 per cent. The red blood cells appeared normal.

The temperature was 98 F., the bleeding time one and one-half minutes; coagulation time four minutes; the tourniquet



Fig. 2—Lateral view showing punctate spots of pigmentation marking sites of previous vesicular eruption.

test negative, the blood culture, negative after two weeks and the sedimentation time fifteen minutes in one hour (slightly above the normal rate). The fragility test showed that hemolysis began at 0.4 per cent and was complete at 0.375 per cent (normal).

CASE 2—Mrs. L. S., aged 38, a housewife born in the United States was seen privately in September 1925 by one of us (E. F. T.) because of a pigmentation of the skin of the face.

<sup>6</sup> From the Pathological Laboratory of the Skin and Cancer Unit of the New York Post Graduate Medical School and Hospital (E. F. A. Bartel, M.D., and Elmer Whitney, A.B., M.S.).

neck and arms following treatment for a dermatitis venenata (ivy) with iron salts. The patient stated that her family physician had treated her early in August of that year for a typical attack of ivy poisoning, using a 5 per cent solution of ferric chloride in 50 per cent alcohol. The areas of pigmentation, which occurred rather extensively on the locations mentioned, failed to disappear when the skin was peeled, for which strong doses of ultraviolet rays were used. More radical measures were not undertaken because of the danger of permanent scar formation. The pigmentation was permanent.



Fig 3—Lateral view showing punctate spots of pigmentation marking sites of previous vesicular eruption

Through the courtesy of Dr George Miller MacKee<sup>7</sup> we are privileged to report briefly four additional cases of pigmentation that came under his observation about fifteen years ago, shortly after the published account of good results in ivy poisoning with the use of the iron salts. He was careful to note that in each instance there had been a severe dermatitis venenata caused by *Rhus toxicodendron*. In each case the eruption was acutely vesicular and exudative in areas. It was his impression that the resultant pigmentation, which was apparently permanent, occurred only in the areas that were eroded at the time the iron preparation was applied as a wet compress.

#### COMMENT

McNair<sup>8</sup> believes that part of the remedial value of iron chloride in *rhus* dermatitis may be due to its ability to form a layer of precipitated and denatured protein on the injured surface, which acts as a protection against the penetration of the poison. He also states that the coagulation effect on protein and the irritant properties of iron chloride cause the lesions to become slightly depressed and darkly colored but result in no scarring of itself. The possibility of the ferric chloride penetrating the tissues and becoming fixed by them has apparently never before been reported. The course of events in these cases apparently is similar to the production of tattoo marks. Although there was some slight difference in the intensity and color of the pigmentation in the different cases, a rather deep golden brown pigmentation seemed to be the striking and characteristic feature in all of them. The pigmentation was exceedingly conspicuous and disfiguring, and as the lesions were to be found chiefly on the exposed parts of the body, that is, the face, neck and arms, the cosmetic defect was a serious one. The deep location of the pigment between the collagen fibers of the upper corium (case 1), indicates that little spontaneous improvement is to be expected and practically assures

the permanence of the lesions. Furthermore, the widespread distribution of the lesions, especially those involving the face and neck, precludes any attempt at removal without the great risk of leaving undue and unpleasant scarring. The fact that it is possible for such accidents to happen at all makes one hesitate to advocate the indiscriminate and widespread use of this type of treatment for a disorder that is usually easily controlled by other remedies entirely devoid of the danger of sequelae. The use of iron salts to be applied as a lotion, compress or wet dressing in any vesicular, bullous or exudative dermatoses should be discouraged, because the accident could occur equally well in the treatment of eruptions other than from poison ivy.

#### CONCLUSION

- 1 Unusual sequelae have occurred in cases of *rhus* dermatitis treated with iron salts.
- 2 There have been cases of widespread permanent pigmentation as a result of the treatment.
- 3 The medical profession is made aware of the fact that ferric chloride is not as harmless as it has been led to expect.

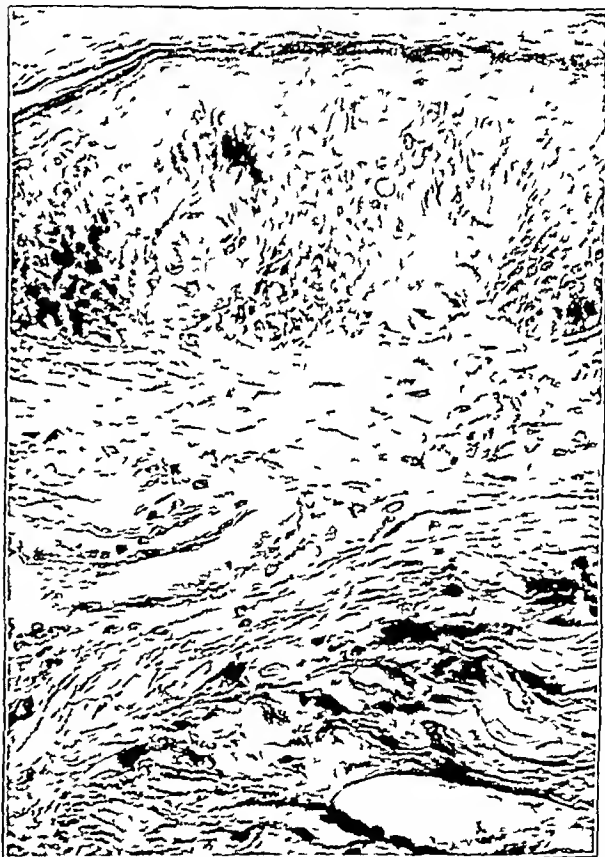


Fig 4—Section of skin removed from one of the pigmented areas showing the deposit of pigment both deep in the epidermis and in the upper corium

- 4 Examples of the kind herewith reported are probably comparatively rare.
- 5 It has been demonstrated that the pigment was deposited around the blood vessels and between the collagen fibers of the upper corium.
- 6 The use of iron salts applied as a lotion, compress or wet dressing should be discouraged in all vesicular, bullous and exudative dermatoses.

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<sup>7</sup> MacKee, G. M. Personal communication to the authors.  
<sup>8</sup> McNair, J. B. *Rhus* Poisoning. University of Chicago Press 1923.

A TWENTY-FIVE-YEAR-OLD ERROR  
IN MEASURING A GIANT

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The case of modern giantism which is most frequently cited is that of John Turner, aged 36, the former driver of a brick-wagon, who is item 32 (surgical No 25947) in Dr Harvey Cushing's monograph.<sup>1</sup> Numerous essayists have pointed to this record as that of an outstanding specimen among the "tall boys," so he has become a rather permanent fixture in the literature on giants. Original references to Turner's case can be found nowhere else in print, however, although his personal history here states that "of late he has been an inmate in various hospitals." Dr Cushing records that this giant's height, measured after death, was 8 feet 3 inches (251.5 cm). I am convinced that this measurement was in error by at least 1 foot, perhaps more, for the reasons which follow.

Cushing's text presents two good full length photographs of the nude and barefooted giant, as figure 220 on page 163 and figure 224 on page 166. An inspection alone shows that this patient's elongation was quite apparently that of the infantilism-eunuchoid, non-acromegalic type. To one who has studied circus giants and applied a tapeline to them it is evident from these photographs that Turner, though he was huge, was far short of 8 feet in height. In the write up of the physical examination the doctor states that "his height is estimated at about 8 feet." It is known that the eye always overestimates the exact height of giants—exhibition giants take advantage of the public's credulity, for it is axiomatic that no giant (or no dwarf) ever told the truth about his dimensions! The majority of them, too, customarily do a bit of tinsel falsifying in the number and the size of their immediate relatives.

Several assorted measurements of Turner are available in the text on page 166.

A Each of his clavicles was 21 cm in length.

B The arm measured 110 cm from the acromion to the fingertip. But because the fingers in both photographs are flexed this dimension cannot be used. However the length from the base of the median metacarpal to the tip of the middle finger was 27 cm. By difference, this leaves an acromion metacarpal length of 83 cm.

C The humerus measured 47 cm from its tuberosity to the external condyle.

D The radius was 37.5 cm in length. (Note C + D or 47 + 37.5, = 84.5 cm, compare measurement B, which is given as 83 cm.)

E The length of the flexed middle finger from knuckle to tip was 17 cm. (Note that the roentgenogram figure 225 is stated to be natural size but on it this finger measures at most only a scant 15 cm; this measurement has been checked against three different copies of the plate to discount any error from paper shrinkage. On this plate the length of the index finger is 12 to that of the middle finger as 132 mm 144 mm or as 11 12. So the index finger, which can be nicely measured as extended in figure 220 was 15.5 cm long.)

F The femur measured 62 cm from the great trochanter to the knee joint.

Other measurements of Turner can be extracted from the account as follows:

Occipitofrontal circumference of the head 61 cm

Width of shoulders between tips of the acromion 36 cm

Scapular spines 20 cm and vertical length of the scapulae 25 cm

Circumference of the middle finger at the first joint, 10 cm

The nail on this finger was 2.3 cm long

Circumference of the pelvis, 109.5 cm

Circumference of the left knee, 58.5 cm

Circumference of the ankle, 48.5 cm

Circumference of the great toe, 13.5 cm

Measurements of the sella turcica 22 by 27 cm.

Total weight of body, 275 pounds (124.8 Kg)

Individual organs had the following weights: brain 1,884 Gm, heart, 520 Gm, pancreas, 70 Gm, spleen, 1,000 Gm, kidneys, 700 Gm, and testes 15 Gm.

When figure 220 is studied carefully it will be noted that the giant is stooped though his head is erect. If

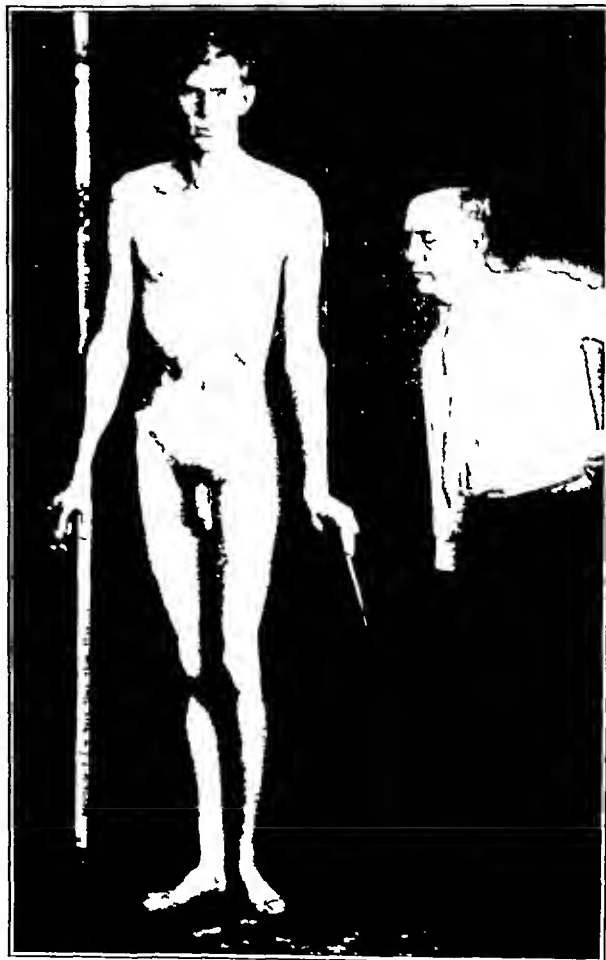


Fig. 1—Reproduction of photograph especially posed in counterfeiting of Cushing's figure 220. The newspaper editor on the right has the same height as Dr. Crowe (5 feet 8 inches (173 cm)). The giant is 21 years old, weighs 180 pounds (81.6 Kg) and is 6 feet 7 inches (201 cm) tall; his face somewhat resembles Turner's and might suggest an infantilism type of gigantism but he has none of the stigmata of this disorder. It will be noted however that he appears to be almost as tall as 8 feet 3 inches (Turner).

a pair of dividers is used to take off the dimensions in this photograph and the points of the instrument are then measured against a scale, the results will be as follows:

The giant's height in this illustration is 152 mm

A Each clavicle here measures 16 mm

B The acromion metacarpal length is 65 mm.

C The humeri are each 32 mm long

D The radii are each 29 mm

E The left index finger is 12 mm

F The femur is 48 mm

<sup>1</sup> Cushing, Harvey: The Pituitary Body and Its Disorders. Philadelphia: B. Lippincott Company, 1912, pp. 16, 10.

Solving each of these proportions gives

A 16 mm	21 cm	152 mm	199 cm
B 65 mm	83 cm	152 mm	194 cm
C 32 mm	47 cm	152 mm	195 cm
D 29 mm	37.5 cm	152 mm	196 cm
E 12 mm	15.5 cm	152 mm	196 cm
F 48 mm	62 cm	152 mm	196 cm

The same photograph also shows Dr S J Crowe, whose height it is stated was 5 feet 8 inches (173 cm). The doctor is not standing erect here, and a careful experimental posing of a man of this height and due attention to the perspective or foreshortening leads me to deduct 8 cm from his stature because of his posture

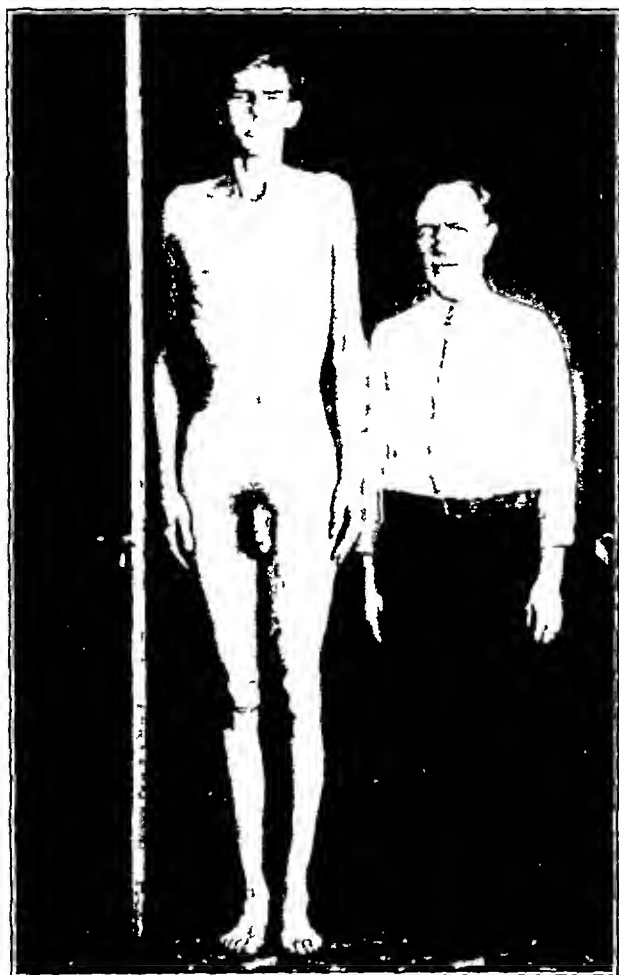


Fig. 2.—The same pair 6 feet 7 inches (201 cm) and 5 feet 8 inches (173 cm)

In the photograph it is 130 mm from the top of Dr Crowe's head to the floor which gives

130 mm	165 cm	152 mm	193 cm
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The same chair appears in both figures 220 and 224, and the legend for the latter calls it a "usual 18-inch chair" Eighteen inches=46 cm In figure 220 the seat of the chair is 36 mm from the floor So

36 mm	46 cm	152 mm	194 cm
-------	-------	--------	--------

All these final figures coincide very closely, so it must be concluded that their weighted mean, 195 cm, or 77 inches (6 feet 5 inches), represents Turner's height quite exactly in the stooped position of this photograph

If a man of 8 feet 3 inches (99 inches) bows himself over until his height is lowered to 6 feet 5 inches (77 inches) he would appear very much more stooped than this photograph shows, for this seven ninths of his height would be the equivalent of a man of 5 feet 8 inches (68 inches) stooping over until his head is less than 53 inches (4 feet 5 inches) from the floor, i e, 99 77 68 53 A quick test of such a stoop will show at once that Turner has not bent himself to any such extent, for it puts one's spine quite nearly horizontal

Turning now to figure 224, one finds Turner seated in a chair, and his posture is fairly erect Again with dividers and a scale one can take off these dimensions from the photograph

From the crown of the head to the left trochanter,	47 mm
From the left trochanter to the left knee,	32 mm
From either knee to the floor at the heel,	31 mm
Photograph's total height, if Turner were standing,	110 mm

And now the measurements of this photograph

B The arm, from acromion to metacarpals,	43 mm
C The left humerus,	24 mm
D The left radius,	19 mm
F The left femur,	32 mm
X The height of the chair's seat,	23 mm

If these proportions are analyzed by the measurements just quoted, the result is

B 43 mm	83 cm	110 mm	212 cm
C 24 mm	47 cm	110 mm	215 cm
D 19 mm	37.5 cm	110 mm	217 cm
F 32 mm	62 cm	110 mm	213 cm
X 23 mm	46 cm	110 mm	220 cm

From these it can be concluded that Turner's height when "straightened out" almost erect was their average, 216 cm or 85 inches, which is, incidentally, a very impressive height

A comparison can also be made with figure 246, on page 183 Here a woman 67 inches (170 cm) tall holds the same two chairs, and the tops of their backs are just at the level of her trochanters This height strikes Turner below his trochanters, just the length of one of his clavicles, or, in figure 220, 16 mm below the trochanter Here the height of the right trochanter is to his whole height as 84 152, assuming that his knees are bent just about as much as his shoulders are stooped So we have

84	—	16	84	170 cm	210 cm
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210 cm = 82 3/4 inches, or 6 feet 10 1/4 inches, if Turner had the bodily proportions of the woman But he was a bit longer legged, proportionally

Really an 8-foot giant, or even one of 7 feet 6 inches, no matter how misshapen, would in the poses of either figure 220 or 224 appear far more bulky and vast Circus giants can't use these ordinary opera chairs so comfortably

As to the sources of the error, what occurred, in all likelihood, is that on the autopsy table Turner's full stretched height, thoroughly straightened at knees and hips and with the head thrown far back, was hastily measured by either Dr Crowe or Dr Sharpe with an ordinary foot rule ("under most inauspicious circumstances," says the text), and it was recorded as 8 feet 3 inches, instead of an actual 7 feet 3 inches The figure 251.5 cm was of course obtained by multiplying 8 feet 3 inches (99 inches) by 2.54, which is the usual conversion factor for inches to centimeters The read-



ing undoubtedly should have been 7 feet 3 inches, or 87 inches, which is equivalent to 221 cm

Turning back to figure 220, Turner, it is easy to see, has stooped over so that his height of 7 feet 3 inches (87 inches) is reduced to the calculated 6 feet 5 inches (77 inches), and the photograph clearly shows him bent over by this amount

Cushing is not the first to err in 'measuring' a giant. The "8 feet 10 inch" giant who was examined after his death from diphtheria at the Willard Parker Memorial Hospital, New York by Dr Douglas Symmers,<sup>2</sup> was one of the two Hugos, and he was but 230 cm (7 feet 6½ inches) tall when Launois measured him a few months before Topinard's celebrated Finlander, "283 cm or 9 feet 4 inches tall," is proved by Langer<sup>3</sup> to have been the Finnish giant Daniel Cajanus who died in 1749. The bones of Cajanus are in the Leyden Museum, and his real height was 222 cm, his femur measures 61.5 cm, or just 0.5 cm less than Turner's, whose twin he actually was in height. Symmers probably accepted a press agent's statement, Topinard's error arose from a mistaken idea of the equivalents of certain national standards of length.

Thomas Hasler (not "Hessler," as Cushing calls him), described by Buhl,<sup>4</sup> was 227 cm tall, his skeleton was mounted and is still to be seen in the museum of pathology. His right femur measures 67 cm (Turner's was 62 cm), the left was somewhat shortened by an old fracture of its neck.

The 19 year old giant at Bushire, Persia, described as 10 feet 6 inches (3.2 meters) tall by Prof D. H. Fuchs<sup>5</sup> actually measured 220 cm (7 feet 2½ inches) when he became patient 1084 at the Imperial Hospital of the Imperial Health Department at Teheran, Persia, according to a complete copy of his hospital record lately sent me by Hon. Charles C. Hart of the U. S. legation at Teheran.

The skeleton of the unknown Kentucky giant, in the Mutter Museum at Philadelphia, has a total height of 230 cm. The clavicles are 21.2 cm long. The humerus, 47.5 cm, and the radius 36 cm are practically the same as Turner's, the femurs, 65.5 and 66.6 cm respectively, right and left, exceed Turner's. Turner's femurs are also shorter than those of Cornelius Magrath, 217 cm tall, whose skeleton is in Dublin, and of Charles Byrne, the Irish giant, 231 cm tall, whose osseous framework was surreptitiously salvaged by John Hunter for the Museum of the Royal College of Surgeons at London. The tallest giant now on exhibition in America is the acromiégalic "Jack Earl" (Jacob Ehrlich of El Paso, Texas), who measures 7 feet 7½ inches (233 cm) tall, his trochanter-knee length is 68 cm.

Comparisons alone would compel one to say that if Dr Cushing's figure of 8 feet 3 inches for the giant's height were correct poor Turner must have been very strenuously and ruthlessly unjointed when he was measured after his death in January 1911! So I repeat my conviction that he was only 7 feet 3 inches tall.

I have never been able to find an absolutely reliable account of a human being who has ever attained as much as 8 feet (244 cm) in height.

## THE WATERHOUSE-FRIDERICHSEN SYNDROME

### A REVIEW OF THE LITERATURE AND A REPORT OF TWO CASES

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The disease now known as the Waterhouse-Friderichsen syndrome was recognized as an entity by Little<sup>1</sup> in 1901. He published a report of four cases of his own and in reviewing the literature found eight other cases which he stated had been "hitherto unclassified." In his series he may have included at least one that was a purpura of a different etiology. In 1911 Waterhouse<sup>2</sup> in England reported a case and reviewed fifteen others. He described the syndrome and gave an accurate account of the symptomatology and pathology. Friderichsen<sup>3</sup> in 1918, in Germany, published a report of two cases of his own and gave a comprehensive review of the twelve cases reported by Little and sixteen other cases collected from the literature at large. In 1934 Bamatter<sup>4</sup> published a report of thirty-eight cases, two of which were his own. In a rather thorough search of the literature I have found reports of fifty-five cases that seem undoubtedly to belong in this category and shall report a recent case of my own and one case from the records of the Willard Parker Hospital which in history, symptomatology and pathology give the typical characteristics of the disease.

**CASE 1**—A white boy aged 7 years well developed and well nourished, according to the mother, had been unusually healthy and strong. He had had a hemangioma of the left auricle at birth which had been given several radium treatments by competent therapists. He had had measles at 2 years, pertussis at

From the Department of Pathology, Willard Parker Hospital, Department of Hospitals of New York City.

1 Little E. G. Cases of Purpura Ending Fatally Associated with Hemorrhage into the Suprarenal Capsules. *Brit J Dermat* 13: 445-467 (Dec.) 1901 (cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12).

2 Waterhouse R. A Case of Suprarenal Apoplexy. *Lancet* 1: 576 (March 4) 1911 (case 13).

3 Friderichsen C. Nierenapoplexie bei kleinen Kindern. *Jahrb f Kinderh* 87: 109-1918 (cases 14, 15, 16, 17, 18).

4 Bamatter F. Fulminante Meningokokkensepsis. Zur Aetiologie des Syndroms von Waterhouse-Friderichsen. *Jahrb f Kinderh* 14: 129-162, 1934 (cases 19, 20).

5 In addition to the cases referred to in the other footnotes the literature includes

Henderson J. A. and Lettigrue F. Sudden Death from Hemorrhage into Suprarenal Capsules in Children. *Brit M J* 1: 14 (Jan 2) 1932 (cases 28, 29).

Middleton R. and Duane W. Fulminating Meningococcus Septicemia Without Meningitis. *Am J M Sc* 177: 648-650 (May) 1929 (case 30).

Langmead F. On Three Cases of Suprarenal Apoplexy in Children. *Lancet* 1: 1496 (May 28) 1904 (cases 31, 32, 33).

Garrod A. E. and Drysdale J. H. Hemorrhage into Both Suprarenal Capsules. *Tr Path Soc London* 10: 257-1898 (cases 34, 35, 36).

Blaker P. S. and Bailey B. E. G. On Some Cases of Hemorrhage into Skin and Suprarenal Capsules. *Brit M J* 1: 75 (July 13) 1901 (cases 37, 38, 39, 40).

Battle S. S. Purpura Fulminans Due to Meningococcus. *Am J Dis Child* 33: 244-249 (Feb.) 1927 (case 41).

Brown L. I. Adrenal Hemorrhage in an Infant. *Minnesota Med* 11: 750 (Nov.) 1928 (case 42).

Andrews F. W. A Case of Acute Meningococcal Septicemia. *Lancet* 1: 1172 (April 29) 1906 (case 43).

Netter Salomon and Blanchier. Two Fresh Cases of Meningococcal Infection with Presence of Meningococci in Purpuric Eruption. *Brit J Child Dis* 14: 264 (Oct-Dec.) 1917 (case 44).

Dwyer H. L. Purpura Fulminans. *J A M A* 85: 1187 (April 22) 1922 (case 45).

Elliott T. K. and Kaye H. W. A Note on Purpura in Meningococcal Infection. *Quart J Med* 10: 361-366 (July) 1917 (case 46).

Roenthal D. B. Case of Acute Suprarenal Hemorrhage. *Brit M J* 2: 645-646 (Oct 7) 1933 (case 47).

Kessel J. S. A Case of Acute Hemorrhage into Both Suprarenal Bodies. *M J Australia* 2: 46-1925 (case 48).

Dudman I. S. The Etiology, Pathology and Diagnosis of Adrenal Hemorrhage. *Am J M Sc* 127: 141-160 (cases 49, 50, 51).

Battin F. F. Hemorrhage into the Suprarenal Capsule. *Tr Path Soc London* 10: 258-1898 (case 52).

Talbot F. Cases of Hemorrhage into the Suprarenal Capsules. *St. Paul's Hosp. Rep* 26: 207-1901 (cases 53, 54).

Andrews F. W. Hemorrhage into the Suprarenal Capsule. *Tr Path Soc London* 10: 259-1898 (case 55).

2 Symmers Douglas. *Interstate M J* 21: 1013 (Nov.) 1917.  
3 Langer. Wachstum des menschlichen Skeletts mit Bezug auf den  
Riech. *Denkschriften der k. k. Akad. d. Wiss. in Wien*  
Math. Naturw. Klasse 21: 91-1872.  
4 Buhl. Mitteilungen aus dem pathologischen Institut zu München  
18: 301.  
5 Vienna letter 1: 1: 104-90 (Feb.) 1915.

4 years and mumps at 5 years. He had been in apparent good health up until 5 p m on the day of onset of this illness. At that time he complained of pain in his knee. There was no history or evidence of trauma. Shortly afterward he complained of malaise and refused to eat his supper. At 10 30 he vomited, complained of weakness and asked to be lifted back into his bed. He slept throughout the night, but at 6 30 a m his mother was attracted by the child's color. He appeared bluish all over his body. She found that he had been incontinent of urine and feces during the night. The child was stuporous and irrational. His breathing was heavy. A physician was summoned and at 10 o'clock he found the child semicomatose and cyanotic, with a beginning purpuric rash and a weak and rapid pulse.

He was admitted to the hospital at 10 50. The respiratory rate was 36, and his breathing was labored. The pulse at the wrist was imperceptible, the apical pulse was rapid but regular. The skin showed a startling cyanosis. Over the entire body excepting the palms, soles and scalp there was a macular purpuric rash the areas varying from a few millimeters in diameter to palm size. They were frequently confluent. These areas were almost solid over the back and the surfaces of the extremities that touched the bed. Scattered over the body were



Section of adrenal under low power showing destruction of medulla and fascicular layer of cortex by hemorrhage

numerous petechiae. The conjunctivae and mucous membrane of the fauces and pharynx were deeply injected. The neck was stiff and Kernig's sign was present in both legs. The temperature on admission was 106 F. The lungs were clinically normal. There was a marked somatic hyperesthesia. A spinal tap was done. The fluid was crystal clear under normal pressure, contained 5 mononuclear cells per cubic millimeter, had a normal albumin, globulin and sugar content and grew no organism on culture. In attempting a blood examination, great difficulty was experienced in obtaining a sufficient amount of blood from a needle puncture wound. Enough for a smear was extracted by the technician. The differential count showed 42 per cent polymorphonuclear leukocytes and 58 per cent lymphocytes. About 75 per cent of the former showed vacuoles in the cytoplasm, approaching the size of the nuclear lobes. The temperature rose to 107 F, respirations became more labored the cyanosis deepened the heart sounds became more faint and the patient died at 11 40 fifty minutes after admission and nineteen hours after the initial symptom. Antemortem and postmortem blood cultures produced a profuse growth of *Micrococcus meningitidis*. Cultures made from the brain post mortem grew the same organism.

At autopsy petechiae were seen in the mucosa of the mouth, larynx, stomach and intestine. Small hemorrhages from 1 to 3 mm in diameter were found in profusion throughout the

peritoneum, pleurae and pericardium. The lungs, kidneys, spleen and liver showed marked congestion with beginning toxic changes in the two latter. The thymus was large, weighing 38 Gm, and hyperplastic. The vessels of the surface of the brain were engorged, the brain was wet and heavy but there was no overt meningitis. The pituitary was deeply congested. The adrenals presented the picture of major interest. They were extremely large, 8.5 by 3 by 2.5 cm, appearing almost as large as the kidneys, weighing 15 and 18 Gm each. They were a deep purple and the capsules were tense with blood.

CASE 2—A white boy, aged 5 years, well nourished and well developed, was admitted to the hospital at 2 30 p m, in November 1928. The past history revealed that other than pneumonia at 3 years, the child had been perfectly healthy until the onset of this illness on the afternoon of the preceding day. The child complained of headache. He was found to have a fever. He vomited.

On admission the patient was cyanotic. The respirations were shallow. The pulse was imperceptible at the wrist and the apical pulse was 168 per minute, the heart sounds were distant. The temperature was 107.6 F. There were scattered rales over both lungs and a petechial rash was present over the entire body. The pupils were dilated and did not react to light. The head was retracted and the back rigid, and the extremities were spastic. A spinal tap was done. The fluid showed an increase in tension, a "large increase" in cells, with 98 per cent polymorphonuclear leukocytes, a few gram-negative diplococci mostly extracellular, a four plus albumin and globulin reaction and a reduction in sugar content. Meningococcus was grown from the spinal fluid. Many of the petechiae in the skin developed into ecchymoses. The child died two and one half hours after admission, about twenty-four hours after the onset.

At autopsy, petechiae were found in the pleurae, pericardium and serosa of the peritoneum and mesentery. The surface vessels of the brain were injected. The lungs were congested. There was a beginning purulent pericarditis and meningitis. The mucosa of both the small and the large intestine showed petechial hemorrhages. The thymus was large, weighing 19 Gm. The liver and spleen showed moderate toxic changes. No hemorrhage was noted grossly in the adrenals but under the microscope they showed advanced congestion and definite hemorrhage especially in the fascicular layer. They weighed 10 Gm each.

#### SYMPTOMATOLOGY

The history and symptoms of case 1 are so frequently repeated in the reports of other cases that one is compelled to feel the importance of recognizing the Waterhouse-Friderichsen syndrome as a disease entity. By far the majority of the cases occur in patients under the age of 1 year, though it is seen not infrequently in adults. Herrick<sup>6</sup> has seen many cases in army practice. Of the fifty-seven cases under discussion, fifteen of the patients, or 26 per cent were under 6 months of age. Twenty-nine, or 52 per cent, were 1 year or younger, and forty, or 70 per cent, 2 years or younger. Of the fifty-seven patients there were six adults, three of whom were over 50. Of the forty-seven cases in which sex was mentioned, twenty-six of the patients were males and twenty-one females.

The typical history states that the patient was in perfect health until the onset of the disease. Of those reviewed, the only cases without sudden onset were complicated with other conditions, which might easily have altered the characteristic early signs.

The initial symptom may be restlessness, headache or malaise but is more likely to be referred to the gastro-intestinal tract. Abdominal pain is mentioned frequently enough to make its occurrence more than coincidence. Thirty-one of the histories revealed vomiting as an early symptom. This was found to be as frequent in adults as in children and infants. Loss of

6 Herrick, W. W. Case of Purpura Fulminans. J. A. M. A. 76: 22 (Jan. 1) 1921 (ca. es. 21-22).

appetite, a flushed face, and perhaps a moderate fever may be the only signals to warn the parent of the child's impending condition. The patient soon becomes stuporous. This may be mistaken for healthy slumber. It is not infrequent to find the patient when he retires complaining of feeling below par and, the following morning, discover him comatose and moribund.

Cyanosis is usually noted about ten or twelve hours after the onset. It is so startling that it attracts immediate attention. This is frequently the first symptom that impresses the gravity of the condition on the mind of the relative or friend and brings the patient to the physician. Twenty-seven of the reports mention cyanosis as an outstanding feature of the symptomatology. The lips and nails of the patient are blue and the skin is livid. Two reports mention alternation of cyanosis with pallor. In one patient a peculiar mottled appearance was evident, especially over the face and hands.

Soon after the cyanosis has manifested itself, petechiae may be noted scattered over the trunk, face and extremities. Their onset is sudden and they increase in size with astonishing rapidity into a vivid, purple macular rash. The mother of our patient watched these "spots" develop while giving the patient a bath. In a small proportion of the cases the hemorrhage into the skin does not advance beyond the petechial stage. Out of the fifty-seven cases studied, thirteen showed neither petechiae nor macular hemorrhage. As the areas increase in size they become confluent and the skin takes on a blotchy appearance, some of the areas being the size of the palm or larger. Over the contact areas, i. e., the buttocks, back and extensor surfaces of the arms, the entire surface is involved so that it assumes the appearance of postmortem lividity. The rash remains until death, usually from six to ten hours later.

At this time the patient is found to be stuporous or semicomatose. One may usually find moist rales scattered over the chest, and the respiratory rate may be increased. In thirteen cases dyspnea was recorded and in a considerably fewer number stertorous breathing and Cheyne-Stokes respirations were noted. The patient may be incontinent. One or more convulsions were listed in twelve of the reported cases. Symptoms of early meningeal involvement are not uncommon at this time. This may be manifested by headache, altered reflexes and a feeling of profound weakness. It is of interest to note that, of the patients who received spinal taps, in only six were there abnormal manifestations. In three there was an increase in cells, in six the meningococcus was isolated from the spinal fluid and in four there was an increase in tension. There is a characteristically septic spiking temperature, which may range from subnormal to 108 F. Early in the disease the increase in pulse rate is proportionate to the rise in temperature, but as it progresses the rate mounts as the circulatory system fails. The rhythm was affected in only one case, but the quality is generally found to be poor and fluctuating. The radial pulse usually becomes imperceptible at about the period of the development of the rash, and at this time also the heart sounds are heard to be indistinct and of poor quality. In three cases injections of epinephrine seem to have caused very temporary improvement in the cardiovascular picture. The blood pressure may be found to be low.

A leukocytosis would be expected. This is mentioned in only seven of the reports. A shift to the left in the

cells of the myelogenous series was noted by Bamatter. Two reports mention difficulty experienced in expressing enough blood for counts and smears by the usual needle-prick method. This was true in our case. The technician finally contented herself with only enough blood to make smears. No Gram stain was done on these smears. Most of the cells were vacuolated and showed other signs of degenerative change. Unfortunately the smears were discarded before a thorough search for organisms was made.

Other signs and symptoms mentioned in five or less reports are a low surface temperature with high mouth and rectal temperatures, muscle flaccidity, low blood sugar, chills, tremor, cough, edema of the lower extremities, strabismus, elevation of the nonprotein nitrogen of the blood, and rigidity of the abdominal muscles.

The importance of finding the organism in the blood stream is stressed by McLean and Caffey.<sup>7</sup> In a series of cases of meningococcal meningitis presenting purpuric exanthemas, they were able to demonstrate intracellular gram-negative organisms in 83 per cent. They made a puncture wound through one of the hemorrhagic skin lesions and from the blood expressed they made smears which they stained by Gram's method. In a series of sixteen of their cases, in which smears and blood cultures were taken simultaneously, the former were positive in thirteen and the latter in ten. This method was used by Netter, Salamer and Wolfson<sup>8</sup> in 1916. They believe that the hemorrhage is due to the presence of meningococci around the vessels.

#### PATHOLOGY

The most constant pathologic condition at autopsy is massive adrenal hemorrhage. In the fifty-seven cases studied, all but two came to postmortem examination, and of the fifty-five cases fifty-two showed bilateral adrenal hemorrhage, three showed unilateral adrenal hemorrhage (all on the right side), and in only one was hemorrhage not mentioned. In one case the capsule had been ruptured, resulting in a hemorrhagic peritonitis. In our case the glands were immense and of a necrotic purple. The capsules were tense and, when opened, grossly resembled blood cysts. No normal glandular tissue could be made out on either side. Under the microscope it was seen that in most places the medullary tissue had completely fallen away and in others was replaced by extravasated blood. Around the capsule there remained a fringe of recognizable cortical tissue. As these cells approached the fascicular layer, they became more widely separated and compressed by blood dissecting in from the medulla. In most places there was complete obliteration of all three glandular layers.

Twenty-three reports mentioned small hemorrhages into the serosa of the peritoneum, pleurae or pericardium, or all three. Fifteen mentioned injection of the superficial vessels of the brain, and six noted pulmonary congestion. Fifteen reports recorded enlargement of lymph nodes or Peyer's patches, or both, and nine mentioned a large thymus. The latter was true in case 1 in which the thymus of a 7 year old child

7 McLean, Stafford and Caffey, John. Endemic Purpuric Meningococcus Pleuroemia in Early Life. *Diagnosis of Values of Smears from Purpuric Lesion*. *Am J Dis Child* 12: 1023-1074 (Nov.) 1931.  
8 Netter, A. and Salamer, M. The Cause of Meningococci in the Purpuric Elements of Meningococcal Infection. *Brit J Child Dis* 11: 101 (April-June) 1917. Netter, A. Salamer, M. and Wolfson, I. A New Case of Hyperacute Purpura with Cerebro-meningitis. Recognition of Its Meningococcal Nature During Life by Microchemical Examination. *Brit J Child Dis* 11: 104 (April-June) 1917 (case 23).

weighed 38 Gm Rabinowitz<sup>9</sup> notes that status thymolymphaticus has often been associated with an insufficiency of the chromaffin system. A few reports mention hemorrhage into the mucosa of the gastrointestinal tract. This, according to McLean and Caffey, may account for the abdominal pain and diarrhea sometimes seen.

It is interesting to correlate the pathologic changes found with the more or less characteristic clinical and laboratory manifestations in this disease. Such symptoms as hypotension, a feeling of weakness, low blood sugar, muscle flaccidity, rise in the nonprotein nitrogen of the blood, vomiting and circulatory collapse have long been accredited to the functional failure of the adrenal glands. Rogoff<sup>10</sup> states that the experimental animal may suffer a loss of both adrenal medullas and one cortex without radically influencing his life and health, and that there is "no good evidence that epinephrine plays a role in the maintenance of normal blood pressure." The functional correlation between the adrenal medulla and cortex is uncertain. It is known that in the lower forms they exist as two separate bodies and that removal of both cortices in experimental animals invariably causes death. Loeb<sup>11</sup> clearly shows that the adrenal gland exerts a controlling influence on the metabolism of sodium ion excretion, depleting the blood of both sodium and chloride. Concurrent with this loss in sodium is a relative dehydration through the kidneys. Thus the actual blood volume may be diminished, which conceivably might result in shock with its resulting chain of symptoms. There is no proof that death in the Waterhouse-Friderichsen syndrome is due to adrenal failure rather than to toxicity caused by the invasion of the blood stream. It is of first importance, therefore, to note what happens to the sodium metabolism in this disease. If there is a marked fall in the blood sodium concentration, one may assume that death is probably due, in part at least, to the collapse following adrenal destruction.

The chain of signs and symptoms that characterize the Waterhouse-Friderichsen syndrome is doubtlessly caused by a bacterial invasion of the blood stream. Up until 1916, the number and variety of organisms cultured from the blood, adrenal gland and skin lesions, including the streptococcus, the staphylococcus, colon bacillus *Bacillus pyocyaneus* and *Bacillus Friedlander*, suggests either that this relatively constant chain of symptoms is caused by numerous different and unrelated organisms or that the methods of culture were faulty. Since almost universally the literature after 1916 subscribes the cause to *Micrococcus meningitidis*, one is more inclined to believe the latter. The splendid work of MacLagan and Cooke,<sup>12</sup> McLean and Caffey, Bamatter and several others leaves little doubt that the disease is most frequently caused by the meningococcus. That some of the symptoms may be caused by other organisms is no less certain. After reviewing the literature, one cannot help but feel that the meningococcus is the sole cause of the syndrome, but only accurate bacteriologic methods, employed in a larger series of cases, will settle the question definitely. Should it be

found that the meningococcus is the only organism causing the disease, the name of the syndrome should be changed to fulminating meningococcemia.

When one realizes the preference of the meningococcus for localization on the brain and meningeal surfaces and considers that the origin of the central nervous system, adrenal medulla and skin is from the same embryologic anlage, one is even more prejudiced to the meningococcus theory.

#### DIAGNOSIS

If treatment with adrenal extracts and sodium chloride proves to be of value in the Waterhouse-Friderichsen syndrome, it will be necessary to distinguish this condition from the rapidly fatal, acute, fulminating cerebrospinal fever. The differentiation may be difficult. The symptoms of adrenal failure and the relatively negative spinal fluid observations are the points on which diagnosis must be made, and even these may be masked or changed. It is known that at least some acute meningitides begin as an invasion of the blood stream and that some fulminant meningococcemias show meningeal localization before death. Indeed, some writers believe that all cases of meningococcemia would go on to a purulent meningitis were it not for the intervention of death.

Differentiation from other conditions should not be difficult. The differences in courses should save the traumatic adrenal hemorrhage seen following birth injuries and purpuras of varying etiologies from confusion with it. Out of eleven cases of adrenal hemorrhage that came to autopsy at the Willard Parker Hospital, death was caused in four by toxic diphtheria, in two by the Waterhouse-Friderichsen syndrome, in two by scarlet fever, and in one each by anterior poliomyelitis, meningitis (*Streptococcus hemolyticus*) and pneumonia.

#### PROGNOSIS AND THERAPY

The prognosis of the disease has, to date, been universally fatal. The duration is rarely longer than twenty-four hours. In a few cases, death has terminated the disease after forty-eight hours. In each of these cases, hemorrhage into one adrenal only is recorded. Therapy, of course, must at this time be largely theoretical. If a rapid loss of sodium ion from the blood stream, followed by fluid depletion, is a result of the adrenal destruction, it would seem rational to replace these elements as rapidly as possible. This could best be done by intravenous injection of sodium chloride solution. It would be interesting to note the effect of large doses of adrenal cortex extract and, since epinephrine seems to increase the potency of cortical extract in adrenalectomized animals, it would seem advisable to administer this drug also. The intravenous use of large doses of antimeningococcus serum would seem consistent with the best principles of treatment. If the infection might be combated with serum, and sodium chloride, fluid, cortical extract and epinephrine given to replace the loss resulting from adrenal failure, and supportive treatment carried out with blood transfusions and intravenous dextrose, it is not inconceivable that some of these patients may in the future be saved.

#### SUMMARY

The Waterhouse-Friderichsen syndrome was first accurately described in the literature in 1901. Since that time it has been recognized in England and Germany as a disease entity. The symptomatology includes sudden onset, malaise, restlessness, and often

<sup>9</sup> Rabinowitz, M. A. Adrenal Hemorrhage in Infancy. *Am. J. M. Sc.* 166: 513 (Oct.) 1923 (cases 24, 25).

<sup>10</sup> Rogoff, J. M. Glandular Physiology and Therapy. The Adrenal Medulla. *J. A. M. A.* 104: 2088-2093 (June 8) 1935.

<sup>11</sup> Loeb, R. F. Glandular Physiology and Therapy. The Adrenal Cortex. *J. A. M. A.* 104: 2177-2182 (June 15) 1935.

<sup>12</sup> MacLagan, P. W. and Cooke, W. E. The Fulminating Type of Cerebrospinal Fever. Pathology and Cause of Death. *Lancet* 2: 1054 (Dec. 23) 1916 (cases 26, 27).

gastro-intestinal symptoms. These are followed shortly by lethargy, which rapidly deepens into coma. High fever, weak, rapid pulse, intense cyanosis and purpuric hemorrhages into the skin are characteristic. The disease is usually fatal in from sixteen to twenty-four hours. Massive, bilateral adrenal hemorrhage is the most common postmortem observation. The etiology is probably a fulminating meningococcemia. Suggested therapy includes adrenal cortex extract, epinephrine, sodium chloride, fluids, antimeningococcus serum, dextrose and transfusions.

Foot of Fifteenth Street

## CONGENITAL BONY TEMPOROMANDIBULAR ANKYLOSIS AND FACIAL HEMIATROPHY

REVIEW OF THE LITERATURE AND REPORT  
OF A CASE

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Bony or fibrous ankylosis of the temporomandibular joint is not a clinical curiosity, but a bony ankylosis of this articulation occurring in the new-born associated with maxillary and mandibular hemiatrophy is of sufficient rarity to warrant a report.

### REVIEW OF THE LITERATURE

Numerous cases of bony intra-articular temporomandibular ankyloses, discovered in the early years of life, have been reported.<sup>1</sup> In all instances in which the ankylosis was discovered within the first year of life or even in those instances in which it was discovered later without a definite history of postnatal trauma there was a history of a difficult forceps delivery. Langenbach,<sup>2</sup> prior to 1903, reported a case of bilateral bony ankylosis resulting shortly after a difficult forceps delivery. At the sixth year of life, arthroplasty was performed and a satisfactory functional result was obtained. Ballantyne<sup>3</sup> cited several cases of hemiatrophy of the mandible and maxilla and stated that this anomaly was often accompanied by ankylosis of the temporomandibular joint, however, no actual case of temporomandibular ankylosis is reported in this complete work. Brash<sup>4</sup> reported a case of facial hemiatrophy with malformation of the ear, but no mention is made of any temporomandibular joint involvement. Canton<sup>5</sup> saw a child, the sixth of eight normal children, who presented atrophy of the left side of the face, the maxilla and mandible all being involved. The ear was malformed, and the usual auditory canal was replaced by two small fistulas.

### ETIOLOGY

The etiology of temporomandibular ankylosis is generally ascribed to infection or trauma. Bony ankylosis has been known to result from otitis media, dento-

alveolar abscesses and complications following scarlet fever,<sup>6</sup> gonorrhea, and even typhoid, in the majority of cases, however, trauma was the direct etiologic factor. Ivy<sup>7</sup> believed that the so-called congenital ankylosis was usually the result of traumatic injuries received at birth and should not be regarded as a true congenital abnormality. Brophy<sup>8</sup> in his extensive work on oral surgery failed to mention the existence of such a condition, nor did Arlow<sup>9</sup> or Gladstone.<sup>10</sup> Blair<sup>11</sup> believed that the so-called congenital ankylosis was "very unusual" and when present was due to trauma shortly after birth or during delivery. He believed that at first a false ankylosis or fibrous connective tissue fixation occurred which then became partially converted into osseous tissue, or that by the use of the forceps in delivery the base of the cranium was fractured in the region of the temporomandibular joint and ankylosis thus resulted. In my opinion, ankyloses arising from birth injuries are not in the true sense of the word congenital.

### PATHOGENESIS

Hemiatrophy of the mandible and maxilla must be carefully distinguished from hypoplasia or interference of growth of the mandible resulting from early ankylosis. The hemiatrophy of the mandible and maxilla found at birth is more likely explained on a trophic basis, whereas that occurring after birth is explained on a dysfunctional basis. Postmortem studies<sup>12</sup> of a patient with progressive hemiatrophy of the face commencing at 12 years revealed definite changes in some of the nerve fibers supplying the aforementioned structures. Underdevelopment of the maxilla and mandible and ankylosis of the temporomandibular joint might be explained by pressure, amniotic or otherwise, acting on the region of the first branchial arches causing arrest of development of the parts formed from this branchial segment. This is evidenced in a case reported by Ogston,<sup>13</sup> in which a unilateral hemiatrophy of the mandible was associated with failure of development of the auditory structures also derived from this arch.

### DIAGNOSIS

Unexplained cyanotic attacks<sup>14</sup> or inability or difficulty in normal nursing may be the first indication of this condition. With bilateral bony ankylosis the mandible cannot be moved, but with a unilateral ankylosis a slight degree of movement or sense of movement is often experienced on examination. Diagnosis is usually made on the basis of developmental inequality of the two sides of the face if the condition is of long duration. In all cases a roentgenologic examination is necessary for the establishment of the diagnosis and to determine the extent and location of the bony union if one exists. Immobility of the mandible in itself is not pathognomonic of bony ankylosis.

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## TREATMENT

Temporomandibular ankylosis was the first condition to direct the surgeon's attention to the necessity for arthroplastic intervention. Excision of the head and neck of the condyle was first performed by Professor Humphrey of Cambridge in 1856.<sup>15</sup> Wilms established a joint in front of existing cicatricial tissue in 1858. Verneuil<sup>16</sup> in 1860 performed an arthroplasty of the temporomandibular joint and even interposed a flap of the temporal muscle and fascia between the bony fragments. Helferick in 1893 reported several successful cases, although he interposed only muscle tissue between the fragments. Osteotomy of the body or ascending ramus of the mandible was attempted. While the operation was less difficult, the functional results were far inferior to arthroplasty as near the joint itself as possible. In 1915 Ricket and Schmidt, who had previously employed ivory joints, used a skin flap to keep the bony fragments separated. Brophy used a method partaking of both osteotomy and arthroplasty, introducing gutta percha between the bony fragments which, in the few weeks time this tissue was allowed to remain, served to form a hygroma. The gutta percha was usually removed after four weeks. Ivy, Blair, Murphy<sup>1</sup> and Lyons<sup>17</sup> have all modified and added minor refinements to the original operation of Verneuil, which is today the accepted method. The different operations vary principally in the type of incision employed and the exposure of the joint obtained.

Perhaps no other arthroplasty operation is as successful as that of the temporomandibular joint. The component parts of the newly formed joint are firmly held in position by the scar tissue and the strong muscular sling formed by the masseter, internal pterygoid and other masticatory muscles. Even functional stress applied to the joint during mastication may be lessened by the presence of food between the teeth. Even when arthroplasty is delayed for many years the results are striking, and apparently the ankylosis of one side of the jaw produces no pathologic changes in the uninvolved one. Cruveilhier, cited by Brophy, reported the case of a woman, aged 89, who had had an ankylosis of the left temporomandibular joint since she was 1 year of age. The right joint functioned satisfactorily after operation, although it has been immobilized for eighty-eight years.

Ankylosis occurring in the first few years of life, provided sufficient nourishment can be obtained, is best treated after 6 years of age, at which time the cooperation of the patient, so essential to a satisfactory functional result, can be perhaps earliest secured. Moreover, the first permanent molars are usually erupted at this time, enabling the placing of an orthodontic appliance to stimulate development of the small mandible. Reeducation of speech may be necessary, but this is usually accomplished within two months after operation, provided no other abnormality is present.

## REPORT OF CASE

A woman, aged 27, had given birth to three children, the first two being normal and the third child having clubbed feet and other developmental abnormalities the nature of which were unknown. It died at 1 month of age. The Wassermann reaction of the mother was negative.

She was admitted to the New Haven Hospital Oct 16, 1934, because of labor pains which had begun the preceding night and disappeared during the day, to reappear in the evening. The expected date of delivery was October 28. There were no pains after noon of the day of admission. A medical induction of labor was begun October 17 with castor oil, quinine and 1 soap-suds enema, but this failed to produce uterine contractions and the patient was discharged on this day from the hospital.

Labor pains were again experienced November 6, and the mother was readmitted to the New Haven Hospital November 7, at 4 20 p. m. she was spontaneously delivered of a 3,200 Gm boy, the subject of this report. Approximately 3,500 to 5,000 cc of amniotic fluid escaped after the membranes ruptured. At birth a malformation of the left side of the face was noted.

On closer examination it was noted that the left side of the face below the zygomatic arch was sunken and no superior border or ascending ramus of the mandible could be felt, nor could the left temporomandibular joint be palpated. The horizontal ramus of the mandible was present but rudimentary. The jaws were in apposition with only a cracklike aperture between the maxilla and the mandible on the right, but on the left the soft tissues were continuous between the two jaws, beginning at a point 1 cm to the left of the midline. The right half of the jaws could be separated with a tongue depressor for about 0.5 mm. The left eye and facial muscles did not move. Just anterior to the left ear was a small pedunculated wart-like growth. Small portwine spots were observed on the cheek and other portions of the body. Roentgenologic examination of the abnormality revealed general aplasia of the left ascending ramus and condyle of the mandible. The left temporomandibular joint could not be definitely visualized.

November 8 the infant was taken to the operating room. The face was prepared with soap, water and 5 per cent solution of trinitrophenol. The lateral portions of the upper and lower lips were infiltrated with a small amount of procaine hydrochloride. Silk traction sutures were placed in them to facilitate exposure of the oral cavity. Examination of the maxilla and mandible at this time revealed fusion of the left alveolar processes from a point 1 cm from the midline to the retromolar area. A diathermy needle was used to transect the soft tissues, but it was further necessary to use a small chisel to separate a number of bony trabeculae which joined the alveolar processes. When these were separated it was possible to open the child's mouth almost 1 cm, and the condylar movements were felt to be practically normal. The tooth bud of the lower left deciduous canine was exposed during the operation and removed. There was no extensive bleeding. The infant stood the procedure well.

November 9 a slight depression was noted in the left supra-orbital ridge and the left eye appeared half closed. On the 14th a distinct but slight muscle weakness was noted of the lower facial muscles on the left. The left eye was never opened as widely as the right. November 16 a distinct difference in the size of the pupils was first noted, the right pupil always being larger than the left even in bright light. There were no recorded observations prior to this date on the size of the pupils. The left ear drum was examined but no abnormality was noted. By December 12 the mandible could easily be opened 2 cm. A slight enophthalmos was observed on the left and Horner's syndrome was suggested. The patient was then discharged from the hospital and was not seen until Jan 9, 1935, when he was readmitted to the outpatient department with the jaws again firmly fused. At this time no movement of the mandible could be obtained, but an anterior cleft approximately 0.5 by 3 cm remained through which adequate nourishment could be obtained.

It was decided to postpone operative procedures until the child was 5 or 6 years old, unless feeding difficulties necessitated an earlier operation. The patient was again discharged January 29 after a period of observation, to be followed through the outpatient department.

The patient was again seen February 27, when there was a definite Horner's syndrome on the left. He was brought back again May 13, with a complaint of difficulty in feeding. At this time the upper and lower left first incisor teeth were erupting, the right centrals were not visible through the mucous membrane. The right pupil failed to react to light, remaining dilated at all times. Roentgenograms failed to indi-

<sup>15</sup> Humphrey. Arthroplasty of the Temporomandibular Joint. *Med A J* 1856.

<sup>16</sup> Verneuil cited by Beavis J. O. Intra Articular Bony Ankylosis of the Temporomandibular Joint. *J. A. Dental A* 15: 871, 1923.

<sup>17</sup> Lyons C. J. Ankylosis of the Jaws. *J. A. M. A* 68: 174 (Jan 20) 1917.



cate clearly the exact point of ankylosis nor could the left temporomandibular joint be satisfactorily visualized August 27 all the upper and lower deciduous incisors were erupted The ankylosis of the mandible and Horner's syndrome remained unchanged

## COMMENT

This particular anomaly is in itself very rare, and this case presented several interesting features Ivy<sup>18</sup> has not heard of a similar case Ogston<sup>13</sup> in his comprehensive discussion of congenital malformations of the lower jaw mentioned that bony ankylosis is often associated with congenital hemiatrophy of the face but did not cite any case Brophy<sup>5</sup> stated that in a larger number of cases of congenitally small mandibles there was usually present at birth some degree of ankylosis Numerous cases of bony ankylosis have been reported following in every instance a difficult forceps delivery or an early postnatal trauma It will be remembered that in this instance delivery was at full term and spontaneous Ballantyne<sup>3</sup> stated that the defect may be due to pressure, amniotic or otherwise, acting on the region of the first branchial arch, causing imperfect development or irregular arrangement of the structures arising from this transitory structure Between 3,500 and 5,000 cc of amniotic fluid, a considerable hydramnios, was present in this case The possible effect that the premature labor pains and the attempted medical induction of labor might have had in the production of this anomaly must be considered More fully developed mandibular and maxillary structures have been seen in seven months fetuses than was observed on the side showing the anomaly It would seem likely that the factor responsible for this defect had been acting for some time prior to the premature labor pains This assumption is in agreement with Charles's<sup>19</sup> study on the growth of the mandible

Numerous writers have repeatedly associated progressive hemiatrophy occurring after birth with some trophic nervous disorder Vichow<sup>20</sup> went so far as to call the condition "neurotic atrophy" of the face If one assumes a trophic disturbance responsible for this anomaly, certain discrepancies are evident on an anatomic and physiologic basis Of two large series of cases reported,<sup>21</sup> the majority showed no anhidrosis, no change in the size of the pupils, no difference in the temperature and no unusual growth of hair Likewise no changes in the orbicularis oculi muscles or the quantitative flow of saliva were noted The evidences of atrophy were found in the skin, in the connective tissue and in the fat and bones The muscles, even those supplied by the fifth nerve, were affected only in a minor degree The muscles supplied by the seventh nerve were unaffected Many cases showed marked hemiatrophy of the tongue The skin usually had a glossy appearance characteristic of trophic disturbances

In most of the reported cases the usual syndrome of cervical sympathetic ganglion injury was not present, and in Bramwell's<sup>12</sup> case no evidence of injury to this structure was observed on postmortem examination He later found an interstitial neuritis of all branches of the fifth nerve most markedly the second division The motor and sensory ganglions and the descending root of the fifth nerve were unaffected No changes were observed in the twelfth nerve A peripheral neuritis was observed about the radial nerve Bramwell

believed that the pathologic changes found in this case did not satisfactorily explain the hemiatrophy

The subject of this report showed undoubted evidence of a typical Horner's syndrome, as shown in the accompanying illustration This suggested that a trophic dysfunction might be responsible for the hemiatrophy at birth However, it was not later reflected in the dental development, as the deciduous incisors on the affected side erupted prior to those on the unaffected side and within the normal eruption time for these teeth

A case of hemihypertrophy, as contrasted to atrophy, has been observed<sup>22</sup> in which at birth all the structures of the involved side, including the tongue, showed a precocious and excessive development The right lower permanent incisors and right first permanent molars erupted at 3 years of age and were larger than normal At 6 years the corresponding teeth on the other side of the face were just erupting or were not visible



Infant at age of 5 weeks

A trophic disorder occurring late in the development of the infant might not produce changes in the size of the temporary teeth, however, one would expect delayed eruption of these teeth which was not present in the case reported It must be remembered that in a disease such as congenital syphilis, for example, with its constitutional implications, the deciduous teeth are rarely involved Therefore it is perhaps too early to make any definite statement concerning the dental structures in this case<sup>23</sup>

As regards the mode of therapy in this particular case, it is possible that reankylosis could have been prevented by the insertion of a fascial or muscular slip between the bony fragments In adults, ankylosis has been found almost always to recur when tresser or muscle is not placed between the fragments in spite of the best cooperative efforts of the patient

<sup>18</sup> Ivy, I. H. Personal communication to the author.  
<sup>19</sup> Charles, N. W. The Temporomandibular Joint and Its Influence on the Growth of the Mandible. *Brit. Dent. J.* 46: 8, 1925.  
<sup>20</sup> Cited by Bramwell.  
<sup>21</sup> Bramwell, J. H. C. A. Progressive Unilateral Facial Atrophy. *Brit. J. Med.* 1: 111, 1906.  
<sup>22</sup> Cited by Bramwell.  
<sup>23</sup> Cited by Bramwell.

<sup>2</sup> A. K. J. C. A. C. Facial Hemihypertrophy. *Brit. Dent. J.* 46: 1, 2, 1925.  
<sup>23</sup> C. A. J. C. A. C. Syphilis in Its Relation to Dentition. *Dent. C.* 50: 116, 1905.

Provided adequate nutrition can be maintained, further operative procedures are not contemplated until the patient is 5 or 6 years old, when an arthroplastic operation will be performed. Orthodontic treatment will then be practical and will aid in stimulating further development of the ankylosed side of the face and in correcting the asymmetry.<sup>24</sup>

## SUMMARY

A full term spontaneously delivered male infant showed true congenital bony ankylosis in the region of the left temporomandibular joint and alveolar ridges associated with maxillary and mandibular hemiatrophy. Labor was not abnormal, but a moderate hydramnios was present. Lysis of the fibrous and bony fixations was performed twenty-four hours after birth, which permitted fairly normal mandibular movements. Bony ankylosis recurred in two months, however, a sufficient anterior aperture remained to permit adequate feeding. No report of a similar anomaly has been discovered in the literature.

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## GLOSSODYNIA

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A discussion of the symptom known as glossodynia is of academic rather than practical importance, from the standpoint of the physician, because such cases are rather infrequently seen. A search of the records of the Mayo Clinic reveals only forty-eight such cases. From the standpoint of the patient the disease is of utmost and paramount concern, however, as it is most distressing and incapacitating. This may be attributable to the fact that this symptom predominantly affects people whose threshold for pain is relatively low. Because of the extreme distress incident to the condition, because of the inadequacy in coping with it, and to stimulate interest in the subject, an attempt has been made to determine, if possible, some of the factors in its etiology and the means by which some patients have obtained relief, as well as any other information pertinent to the problem.

When one attempts by a perusal of the literature to obtain some knowledge of this subject one is struck by the paucity of material. Oppenheim<sup>1</sup> in his textbook of nervous diseases devotes only a small paragraph to the condition. Throughout the literature a like neglect is evident. Many articles purporting to consider diseases of the tongue make no mention of the various functional disorders. This is not surprising, of course, since neurologic diseases in general are looked on with indifference by many members of the medical profession.

Among the earliest references to glossodynia were those of Buisson<sup>2</sup> in 1854, Schwimmer<sup>3</sup> in 1886 and Magitot<sup>4</sup> in 1887. Butlin and Spencer<sup>5</sup> in their epochal work on the diseases of the tongue devoted considerable space to this disorder and mentioned as

the causes (1) a neuropathic disposition, (2) dyspepsia or a gouty diathesis, and (3) infection producing reflex burning or pain. Oppenheim gave the best consideration from the neurologist's point of view, he described the disease as

paresthesia, particularly a burning and prickling sensation on the tongue extending perhaps to adjacent membranes. It may be continuous, paroxysmal, and may even disturb the sleep. It has been observed particularly in women of advanced age but is not very common. The teeth were almost always absent, a neuropathic predisposition is generally present, a gouty diathesis may also tend to cause it, cancerophobia is often present. Often it cannot be decided, however, whether hypochondriasis evoked the paresthesias or vice versa. Nothing is found on examination. It is a persistent disorder and may be an initial symptom of tabes dorsalis and of dementia paralytica. Similar disorders may occur elsewhere. I observed a urethrodynia in one of my patients. Glossodynia should not be confused with xerostomia. The treatment is a psychic one. Local treatment by cocaine, silver nitrate and so on may be recommended. Electricity may also be tried.

Sluder<sup>6</sup> in 1918 offered the opinion that lingual tonsillitis plays a causative part in painful tongue or glossodynia. Dean<sup>7</sup> in 1922 and Sluder<sup>8</sup> in 1923 wrote of the relief of the disease by cocainization of the nasal, sphenopalatine or Meckel's ganglion. Dean's patient was apparently permanently relieved by injection of 95 per cent alcohol with 5 per cent phenol into the ganglion.

Engman<sup>9</sup> in 1920, in reporting a group of twelve cases, attributed the symptom to a fear of carcinoma. All his patients were considered to be psychoneurotic and all of them had an intense fear of carcinoma. His therapeutic suggestion was contained in one word, "reassurance."

Beall<sup>10</sup> in 1922 reported four cases in which he felt that the condition was dependent on faulty diet. Two of these patients recovered when milk, cream and meats were added to their diets. He raised the question as to whether these were cases of early pellagra and he also felt that the condition was the result of a diet poor in protein. In the discussion of his paper, mention was made of relief obtained in two cases by the administration of hydrochloric acid and in three others by the administration of alkali.

McPhedran<sup>11</sup> in 1927 reported six cases of glossodynia. In four of these cases the patients were past the menopause, and all his patients were of a nervous temperament. All had had repeated serious illnesses and half of them also had undergone major operations. All presented themselves because of lingual symptoms. In none of these cases could there be found anything objective on examination. All were living under high nervous tension and reported that excitement, worry and loss of sleep accentuated their discomfort. Any improvement seemed to result from improvement in general health.

Marshall<sup>12</sup> in 1928 drew attention to the papillae foliatae, a row of small vertical projections of mucosa

24 Boe H. W. Hemiatrophia Facialis Progressiva Treated with an Expansion Appliance in the Oral Cavity. *J. Am. Dent. A.* 20: 2102 (Nov.) 1923.

1 Oppenheim Hermann. *Lehrbuch der Nervenkrankheiten*. Berlin S. Karger 1913.

2 Butlin quoted by Butlin and Spencer.

3 Schwimmer E. L. Beiträge zur Glossopthologie. *Wien med. Wechschr.* 36: 337 1886.

4 Magitot E. J. De la glossodynie glossalgie (Breschat) rhéumatisme musculaire de la langue névralgie linguale ulcérations malignes de la langue. (*Verneuil*) *Gaz. hebdo. de med.* 24: 788-791 1887.

5 Butlin H. T. and Spencer W. G. Diseases of the Tongue. New York Cassell & Co. Ltd. 1900 pp. 410-411.

6 Sluder Greenfield. Some Clinical Observations on the Lingual Tonsil Concerning Gout, Glossodynia and Focal Infection. *Am. J. M. Sc.* 156: 248-252 (Aug.) 1918.

7 Dean L. W. The Control of Glossodynia Through Nasal (Sphenopalatine or Meckel's) Ganglion. *abstr. South. M. J.* 15: 856 (Oct.) 1922.

8 Sluder Greenfield. A Case of Glossodynia with Lingual Tonsillitis as Its Etiology. Control Through the Nasal Ganglion. *J. A. M. A.* 81: 115 (July 14) 1923.

9 Engman M. F. Burning Tongue. *Arch. Dermat. & Syph.* 1: 137-138 (Feb.) 1920.

10 Beall K. H. Glossopyrosis. *South. M. J.* 15: 272-274 (April) 1922.

11 McPhedran H. Glossodynia. *St. Michael's Hosp. M. Bull.* 2: 59-64 (June) 1927.

12 Marshall C. J. The Papillae Foliatae and Carcinophobia. *abstr. Brit. M. J.* 2: 13 (July 7) 1928.

on the sides of the tongue immediately anterior to the attachment of the palatoglossal folds. These, he said, have no pathologic significance and yet, when discovered by the patient, may cause grave worry.

Seller<sup>13</sup> in 1928 commented on cases in which burning tongue was associated with hyperacidity. He recommended alkalis and a suitable diet as the proper treatment. He postulated that the burning is a reflex from the stomach, by way of the vagus nerve to its nucleus in the floor of the fourth ventricle, and thence to the nucleus of the trigeminal nerve and down the latter nerve to the tongue.

Morelli<sup>14</sup> in 1929 confirmed Seller's observations and called attention again to the relief incident to alkaline and dietary therapy. He confirmed also a further observation by Seller that, by producing a moderate hyperacidity, he could bring on the symptom of burning tongue and likewise relieve it by the administration of alkalis and by regulation of the diet.

Michael<sup>15</sup> in 1931 again called attention to the cancerophobia that is "usually present." He found the pain to be constant or inconstant, as the case might be, with a duration varying between months and years, and with periods of freedom for as long as several months. As to etiology, he mentioned, first, a psychoneurosis, second, local causes, such as artificial dentures, third, hypo acidity or hyperacidity, and, fourth, pernicious anemia. He felt that local applications are of little avail. In the discussion of this paper, mention was made of myxedema as another cause of burning tongue.

Montgomery and Culver<sup>16</sup> in 1932 found that the date of onset is usually not known. They found also that in half of their thirty-two cases a change of appearance in the tongue was noted at the site of burning, that is, the papillae were enlarged and reddened or purple. Their patients characteristically drew attention to this change. These writers mentioned reflex causes from the digestive tract, tonsils and teeth, mechanical causes from rough teeth, the effects of sweets and fruits, and the abuse of the use of tea or coffee as possible etiologic factors. They felt that smoking had no effect.

As had been mentioned previously, this group of patients seen at the clinic numbered forty-eight. As others have found, the majority of sufferers were women, thirty-seven of the forty-eight patients seen at the clinic were women. Of the whole group, thirty-five, or nearly three fourths, were more than 50 years of age. The average age of the whole group was 54.3 years. The ages of the male patients varied between 27 and 73 years, and the ages of the female patients varied between 20 and 72 years. There was a larger percentage of the female patients in the upper age group than the opposite sex showed.

Because one or two writers have felt that there was some connection between migraine and glossodynia, I have attempted to determine the incidence of the former disease in this group of cases. Only ten of the forty-eight patients, or, roughly slightly more than a fifth of the group, gave a history of migraine. At first glance, this is a seemingly low incidence as the proportion of individuals in the general population who suffer from migraine is considerably greater. When one con-

siders, however, that nearly 75 per cent of the patients in this series of cases were past 50 years of age, the seeming discrepancy is understandable for, as is well known, migraine tends to disappear after the age of 50 years. No connection, therefore, could be determined between these two conditions.

Another factor which it seemed reasonable to suppose might be a powerful etiologic agent is that form of mental disturbance known as depression. The frequency with which patients suffering from affective disorders are liable to be hypochondriac and to suffer from somatic delusions made this supposition sound very tenable. It was interesting, therefore, to note that only five of the forty-eight patients could reasonably be classified as being depressed, nevertheless, the incidence of mental depression is higher among those who suffer from glossodynia than it is among the general population.

As one goes over the history of cases in which glossodynia has been the diagnosis one obtains the impression that, in addition to the fact that the patients are generally individuals who are well up in years, some of these patients have signs of definite sclerosis of the cerebral vessels. This is an impression which also has been gained by many neurologists of wide experience. In eleven of these forty-eight cases there was evidence of arteriosclerosis of the central nervous system. Here again, therefore, is another possible factor in the production of glossodynia.

As mentioned previously, certain writers have felt that there is a connection between the gastric acidity and glossodynia. In the sixteen cases in which gastric analysis was performed, the values for the gastric acidity were normal. In five other cases the values for the free hydrochloric acid in the stomach varied from 8 to 16, according to the method of Topfer. An acidity was present in only three cases, and in only one of these cases was there any anemia whatever. This was the result of an extensive carcinoma of the stomach. Four years after examination another patient who had achlorhydria, reported that the burning was still present but that many other symptoms, which included burning in the rectum and vagina had abated. There was no reason, therefore, to think that pernicious anemia had developed. In the third case, in which hydrochloric acid was absent from the gastric secretion, the patient reported two years after her first visit to the clinic that her tongue was no better. She failed to mention any other symptoms present at the time of writing the letter. It is needless to say that the appearance of the tongue is widely different in glossodynia and in pernicious anemia.

Cancerophobia has been indicted by one writer as the cause of glossodynia. It so happened that this fear was present in all of his twelve cases. A comparable relationship was not found in the group of cases under consideration. Only eight of the forty-eight patients expressed this fear which in some cases amounted to a phobia and it is difficult to determine whether this fear or the burning came first. A few seemingly had acquired the burning first. One of these also had a dread of pellagra. Two patients had a fear of syphilis, which played a very active part in their histories. This small incidence of patients who have the intense fear of carcinoma known as cancerophobia is worthy of emphasis. Most of the writers comment on the extremely high percentages of individuals so afflicted.

Another point which most writers have felt worthy of mention is the condition of the teeth. Most patients

13. Seller, Josef. Durch Hyperazidit te verursachtes Zungenbrennen. *Deut. che med. Wchnschr.* 2: 1758-1759 (Oct. 19) 1928.

14. Morelli, C. A. I. Effettorische Leberempfindlichkeit der Zunge (Hyperacit te, reflectorische lingu e). *abstr. Zentrall. f. Hist. u. Geschlecht* 26: 309 1929.

15. Michael, T. C. Burning Tongue. *Tex. State J. Med.* 27: 30 1931 (Aug.).

16. Montgomery, D. W. and Culver, C. D. Painful Tongue. *Arch. Int. Med. & Syph.* 26: 174-177 (Sept.) 1932.

whose tongue, palate or mucous membranes are the seat of a burning discomfort have of course, had their teeth examined. As so often happens in other conditions, doctors and dentists advise extraction rather frequently on empirical grounds in these cases. Consequently, it was not surprising that of the forty-eight patients in this series twenty had lost all or many of their teeth. Twelve of the twenty were completely edentulous. Twenty-one still retained the dentures with which nature provided them. In seven cases no record of dental examination was noted.

I will now consider what is perhaps the most significant aspect of this discussion, namely, the neuropathic predisposition. Thirty-seven of the forty-eight patients complained of various functional disorders, in addition to the glossodynia. When a physician designates a symptom as functional, he lays himself open to a possible considerable amount of criticism. He is especially vulnerable because such an opinion is founded on his interpretation of symptoms voiced by the patient whose understanding of the same words may be entirely different. This is especially true when symptoms are vague and hard to describe. Be that as it may, it is assumed and maintained, although with not too great certainty, that thirty-seven of the group were psychoneurotic individuals whose many and varied symptoms classified them as such from the outset. These other neurotic symptoms included burning of the legs, continuous headache, a drawing sensation from the stomach to the rectum, continuous pain in the cheek, generalized aching of long duration, burning in the vagina and rectum, a feeling as of a lump in the throat, discomfort in one apparently normal tonsil, and the taste of pus in the throat. Gastro-intestinal symptoms, presumably functional, also should be mentioned with this group.

Perhaps one of the best evidences of the fact that glossodynia is a psychoneurotic manifestation is the way in which some of the patients report that they received relief from their distress. One woman, while still at the clinic, received treatment for varicose veins. She had had a bitter taste, and burning in her mouth, tongue, pharynx and nose, for two and a half years. When the doctor injected a drug into one of her veins, she said that she collapsed and feared that she was "gone." The doctor then injected something in her arm and she recovered. By the time she reached her hotel room, the burning in her tongue was gone and at the time that she replied to our letter of inquiry, two years following her visit to the clinic, she still had had no return of the glossodynia.

Another patient reported that no physician had been able to help her. She, however, finally hit on the scheme of chewing spruce gum, for which she sent half way across the country. This form of therapy, surprisingly enough, resulted in complete relief of her pain. These instances, it seems, are fairly strong evidence that suggestion was the significant factor in the treatment and, as such, could only have resulted in relief of a condition which was psychogenic in origin.

Through subsequent visits to the clinic or letters of inquiry, it was possible to learn further about the course of the disease in twenty-five cases. Of the twenty-five cases, complete recovery was reported in eight. Five other patients felt that they were somewhat better than they had been. Three others had found that they had discovered the cause of their discomfort. Thus, one man reported that as long as he refrained from smoking he had no burning, another

patient, a woman, could avoid the burning by excluding starches from her diet. Still another woman had found that by eliminating strawberries, rhubarb, pineapple and highly seasoned foods she, too, was free from the pain. The rationale of this is none too clear, since the glossodynia had been continuous. In nine of the twenty-five the condition was either worse or not better. One of the patients had experienced relief following the extraction of her upper teeth. Another found that by holding some chewing gum or a piece of slippery elm bark in her mouth she could obtain partial abatement. Still another individual, on a subsequent visit to the clinic, made no mention of the burning, and this apparent recovery was perhaps the result of the fact that a pain in the face, which she had complained of coincident with the burning tongue, had become worse. It was therefore probably a case of the one distress overcoming perception of the other. One patient, on a second visit to the clinic, reported that a chiropractor had relieved her burning tongue. Several apparently improved without any treatment except reassurance, encouragement and the passing of time.

As to the duration of this condition, the figures in this group are somewhat unreliable for the reason that, as Oppenheim has pointed out, the date of onset is rather vague in the minds of most of these people. In only eight of these cases could the duration be even approximated. The longest duration was nineteen years and the shortest two years. In five of the eight cases the condition had been present approximately two years.

Finally, it should be emphasized that in none of these cases were there found any local or general positive physical manifestations except for an occasional bad tooth and achlorhydria, which was present in three cases. The burning in this series involved the tongue and the mucous membrane of the mouth, cheeks, lips, pharynx, palate and even of the nose. The discomfort included not only burning but such sensations as a metallic or bitter taste in the mouth, prickling, sticking, an acid taste, and a feeling as if a hot iron had been placed on the parts affected.

#### SUMMARY AND CONCLUSIONS

The following points seem worthy of final iteration. More women are affected than men, and the disease has its onset more frequently beyond the age of 50 years. There is a high incidence of other psychoneurotic symptoms accompanying this manifestation. A fair proportion of patients also suffer from arteriosclerosis of the central nervous system and a small proportion suffer from depression coincidental with this burning, painful tongue. Cancerophobia is present in a few cases. The teeth have been removed in approximately half of these sufferers. Complete relief may be expected in about a third of such cases and partial relief may be expected in another third. Relief may result from various forms of psychotherapy alone, as local treatment apparently is of no avail.

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**The Common Eel**—The common eel of our rivers has its spawning groups in the Atlantic Ocean near Bermuda. Here the eggs are deposited and the young eels hatch and must then swim all the way back to the U. S. to grow up. European eels of the closely related species also visit nearly the same locality to spawn. But somehow the young of the two species sort themselves out—the young of the American species requiring a year to reach home shores, and the other requiring three years to reach England and France.—Bell, F. T. *Fish and Their Management*, *Tells* 1:32 (April) 1936.

OXYGENATION IN RELAPSING  
AMEBIASIS

REPORT OF CASE

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Though it is a solitary instance, I believe this case presents several features which make its reporting incumbent on me. That amebiasis is a protracted and recalcitrant malady is of negative concern to this discussion, but when recrudescence occurs after a period of veritable clinical arrest the condition assumes a coercive character, calling for a most exhaustive therapeutic armamentarium.

An incidence of only fifty-five cases of amebic dysentery in the population of New York City of more than seven million is insignificant, but a death rate of five out of these fifty-five cases is too high to escape attention. I am of the opinion that it is the delay in proper diagnostic approach which is conducive to ineffective therapy when diagnosis is finally established. When confronted with a doubtful case of mucous colitis, one should treat for amebiasis until the condition is proved otherwise. It is likely that the favorable result reported from the use of antiamebic agents in cases of mucous colitis have occurred in patients who had an undiagnosed amebic infestation. Delay in diagnosis is synonymous, in most cases, with delay in therapy, an accentuated aggression of *Endamoeba histolytica* on the intestinal mucosa, and a host depleted of vigor in a vain effort to combat a harmful dweller in the colonic tract.

The salient points in this case are as follows:

A S, a woman, aged 26, single, was admitted to the hospital Jan 5, 1935, with a diagnosis of hemorrhagic colitis.

The history pertaining to a bowel syndrome dated back to April 1934 when its three months' duration was marked by an elimination frequency of from six to seven times a day. The sanguinous stools were ascribed to the old popular diagnosis of "bleeding piles." A lull in symptomatology followed, but after several months diarrhea recurred. Loss in weight, secondary anemia and asthenia dominated the clinical picture. Nonspecific therapy without clinical amelioration effected her hospitalization. Repeated examinations of the feces revealed the ameba in vegetative and cystic forms.

The conventional specific treatment was instituted. Emetine, injected intramuscularly, was in the vanguard alternating with arsenicals and iodochlorhydroxyquinoline, properly spaced. The response was spectacular. The patient was discharged symptom free, March 8. Careful observation and amebicidal therapy were continued. The patient had enjoyed splendid health when out of a clear sky in the latter part of May the bowel symptom returned in all severity. Acute, fulminating diarrhea gravis was a pertinent and descriptive term for the condition. Proper spacing of arsenicals brought no results. The administration of powdered ippecac root in the form of enteric coated capsules, with at least 40 grains (2.6 Gm) being brought into play at one time, was discontinued because of marked nausea unaccompanied by evidence of efficacy. The patient took a downward course. Two blood transfusions were given with but meager improvement in the general condition. Surgical intervention was hesitantly considered.

At this phase of an obdurate malady I analyzed the facts of the history as follows. With the second admission to the hospital the case was considered as a relapsing stage of chronic amebic dysentery. Diagnosis in such cases in the absence of live motile parasites, is made from the resting or cystic forms. Wet stool specimens disclosed no amebae but cysts were found. The conventional therapy, properly spaced was administered with a progressively worse response on the part of the patient who was literally cemented to the bed pan. The dominating

picture consisted of true anorexia, progressive asthenia and gross emaciation. Depleted resistance was added to a syndrome of nervous depression, resignation and episodes of crying spells.

Amebic hepatitis and amebic abscess were ruled out. Tenderness in the right lower part of the abdomen with no soreness elicited over the liver region suggested a feeding focus of amebic infection. Exploratory laparotomy was suggested in a "nothing-to-be-lost" attitude. Repeated search for tuberculosis and bacillary dysentery yielded negative results. Microscopy of the biliary aspirates (Meltzer-Lyon method) disclosed rare pus cells, a moderate number of red blood cells, many squamous and cuboidal cells, but no amebae. The patient went through this test heroically in hopes of obtaining relief. I was convinced of the inadvisability of repeating the procedure in this case, and questioned the possibility of an anaerobic spore-bearing organism's being the enemy.

A proctoscopic examination brought into view a classic ulcerative picture with profuse bleeding. A barium sulfate suspension enema revealed 'ulcerative colitis and ileocecal incompetence.' With the patient sinking rapidly there was no time for culture study of feces in an effort to establish fine, precisional diagnosis. Empirical therapy, like exploratory laparotomy when diagnosis is obscure, was urgently called for and instituted.

## TREATMENT

High regard must be given to Dr Joseph Felsen<sup>1</sup> for his splendid presentation concerning the use of colonic irrigation with strong oxidizing agents. It occurred to him that "perhaps pure oxygen in amounts sufficient to alter materially the gaseous tension in the intestines might prove more effective and less distressing than the fluid irrigations." The results he obtained by the use of oxygen in idiopathic ulcerative colitis were encouraging. The case under discussion did not come within the definition of the syndrome of idiopathic ulcerative colitis because the parasitology had been well established. We were confronted, however, with a mucopurulent sanguineous exudate in a case of relapsing amebiasis that proved recalcitrant to a varied and specific therapy. Under such circumstances, the end result of pathogenesis deserved all attention—an ulcerative colitis calls for treatment. Colonic irrigation with various amebicidal agents was not only working great hardship on a weary and exhausted patient but had brought about a prolapse of the rectum which occluded the anal ring. All attention was focused on reducing the marked edema of a protruding vulnerable mucosa. Except for symptomatic therapy, all amebicidal agents were discontinued. Careful analysis of the case justified my conclusion that I was dealing with a case of symbiosis of a pathogenic macrobic micro-organism with a harmful parasite. Paulson<sup>2</sup> asserts, in ulcerative colitis, that the term idiopathic precludes the presence of pathogenic parasites. "Yet," he writes, "the simultaneous appearance of amebic dysentery and ulcerative colitis has been claimed to occur as distinct entities in some cases by virtue of the concomitant occurrence of three conditions (1) the isolation of *E. histolytica* (2) the feeling that the etiology of ulcerative colitis has been ascertained, and (3) the presence of types of ulceration seen by rectosigmoidoscopy said to be characteristic for each of these conditions." He reasons, "it would seem to be in error to deviate from the accepted teaching, namely, that the infection by *E. histolytica* be regarded as primary and the involvement of ulcerative colitis as secondary."

The case under discussion presents proof of priority of disorder in the two roentgenologic studies of the colon. During the first attack in January 1935 the

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<sup>1</sup> Felsen, Joseph. Intestinal Oxygenation in Idiopathic Ulcerative Colitis. Arch. Int. Med. 15, 766 (Nov.) 1931.  
<sup>2</sup> Paulson, Moses. The Present Status of Idiopathic Ulcerative Colitis. J. A. M. A. 101, 1687 (Nov. 25) 1933.



report read "marked spastic colitis" and in August 1935 "ulcerative colitis." Examination of the roentgenograms gave undebatable evidence of primacy of diseases namely, the infection by *Endamoeba histolytica* as primary and the involvement of ulcerative colitis as secondary. Kiefer's<sup>3</sup> study of forty cases of ulcerative colitis is in agreement with Paulson's contention. Kiefer found that 74 per cent of the cases showed a positive Craig test for *Endamoeba histolytica*, and in many of these cases antiamebic treatment yielded favorable results. It is conceivable that the success of ipecac therapy in mucous colitis may have occurred in patients afflicted with unrecognized amebic infection. Paulson is right in his assertion that "etiology and therapy should not be confounded clinically." The art of medicine must often be separated from the science of medicine, and the therapy chosen must be that of most efficiency, regardless of etiology. Ileotomy was considered, but the condition of the patient made such intervention extremely inadvisable. Further, while acute septic symptoms might be relieved, the damaged colon would not regenerate. I therefore chose to treat the case as a secondary ulcerative colitis, based on a mucosa made vulnerable by the ameba, an environment in which even normal colonic dwellers, saprophytes, become violent and pathogenic.

I feared to administer the recommended dosage of oxygen ("seven hours of oxygen per day administered every other hour between 8 a. m. and 9 p. m. provided a gaseous content of approximately 1,750 cc., or almost 2 liters")<sup>1</sup> because the ulcerated areas and copious oozing of blood indicated danger of perforation. We commenced with a dosage clinically comfortable to the patient (shown in the accompanying table) given in alternate hours between 8 a. m. and 8 p. m. Nocturnal administration of castor oil enabled better toleration of the distention caused by the incoming oxygen. No belching was noted. The expulsion of debris, mucus and coagulated blood from the wall of the intestine permitted ready access to the incoming oxygen. No rule as to the duration of oxygenation could be observed, however, dosage and frequency being governed by tolerance of the patient.

The response to oxygenation was spectacular. The patient's appetite assumed an avacious aspect. In

*Oxygenation Administered*

Date	Minutes	Bubbles per Minute
July 23 1935	160	20
July 24 1935	160	20
July 25 1935	240	40
July 26 1935	120	20
July 27 1935	180	20
July 28 1935	180	20
July 29 1935	240	20
Total 21 1/2 hours		Approximately 6 1/2 liters

addition to a liberal tray she enjoyed large sandwiches brought by her mother—an act of devotion which was detected and allowed. It is interesting to note that the red cell sedimentation rate receded from 31 mm. to 19 mm. for thirty minutes. Her markedly dehydrated clinical picture improved rapidly. This, of course, might be attributed to intravenous administration of 5 per cent dextrose in physiologic solution of sodium chloride. This therapy is synergistic, but dextrose did not destroy the pathogenic micro-organisms. A heavily coated tongue and offensive breath cleared. Bowel movements became fewer, and improvement in the patient's general condition was marked. Hydrochloric acid

therapy was instituted long before gastric analysis revealed an achlorhydria, on the principle that an inhibited gastric secretion is part and parcel of general debility. The hydrochloric acid was not administered as an antiamebic. The ameba passes through the stomach uninjured by free hydrochloric acid. But a basic part of antiamebic therapy is the strengthening of the general condition of the patient. As a high caloric diet calls for a high hydrochloric acid value, and, as noted, general debility implies low hydrochloric acid or achlorhydria, administration of hydrochloric acid, following a gastric contents test, is indicated in amebiasis.

The patient was discharged from the hospital Aug. 17, 1935, and was placed on vioform.

#### CONCLUSION

A solitary case does not permit the drawing of a definite conclusion. The facts are here presented. The favorable results derived from oxygenation in a justly labeled "colitis gravis" stemming from amebiasis warrant its report. If those who are confronted with similar cases employ colonic oxygenation, case reports and series studies will give cumulative evidence of its therapeutic effectiveness. Survey of the literature disclosed no reference to colonic oxygenation in amebiasis.

Unfortunately the vagaries of the patient's family have prevented a close follow up. The main argument of this report, however, is not that a cure was obtained but that development from tumult to quiescence was achieved by harmless oxygenation of the colonic tract.

118 West Seventy-Ninth Street

## Clinical Notes, Suggestions and New Instruments

### BRADYCARDIA DUE TO SPONTANEOUS HYPOGLYCEMIA REPORT OF A CASE

ALEXANDER PIERCE ORMOND, M.D., AERON, OHIO

The cardiac response seen most commonly with hypoglycemia is an increase in the ventricular rate and in the minute volume.<sup>1</sup> Various degrees of tachycardia are seen quite commonly both in patients who have received an overdose of insulin and in patients with spontaneous hypoglycemia. Harris<sup>2</sup> reports a rather extreme example. His patient at times had a cardiac rate of 200 beats per minute. During one bout of tachycardia it was discovered that her blood dextrose was 56 mg. per hundred cubic centimeters. Administration of dextrose raised the blood dextrose to 84 mg. per hundred cubic centimeters and at the same time dropped her heart rate to normal.

I have not been able to find in the literature any reference to the occurrence of bradycardia with hypoglycemia. Harris<sup>3</sup> stated that although he had not observed bradycardia with spontaneous hypoglycemia, he did recall one diabetic patient in whom bradycardia followed insulin overdosage.

#### REPORT OF CASE

J. A. F., a man, aged 27, had rather frequent colds, and a sore throat every winter until 1929. He had influenza in 1918. Otherwise he had remained well until 1930, when he had two attacks of stomach trouble lasting several weeks. In September 1931 he had a more severe attack and sought the advice of a physician. These attacks were characterized by sour stomach, "heartburn" and the belching of gas, beginning about two hours after meals. There was no pain or nausea. He was examined thoroughly but nothing unusual was found. Gastrointestinal x-ray studies showed nothing abnormal except the appendix.

<sup>1</sup> Ernestine A. C. and Altschule M. D. Effect of Insulin Hypoglycemia on Circulation. *J. Clin. Investigation* 10: 521-528 (Aug.) 1931.

<sup>2</sup> Harris Seale. Clinical Types of Hyperinsulinism. *Am. J. Digest Dis. & Nutrition* 1: 562-569 (Oct.) 1934.

<sup>3</sup> Harris Seale. Personal communication to the author. June 12, 1935.

<sup>3</sup> Kiefer E. D. The Craig Complement Fixation Test for Amebiasis in Chronic Ulcerative Colitis. *Am. J. N. S.* 152: 624 (May) 1932.



which was linked, somewhat enlarged at the tip and remained filled at the end of seventy-two hours. The patient stated to me that at this same time he became weak and nervous toward the end of his day's work, his heart fluttered, raced and sometimes seemed irregular in rhythm, and he had several fainting attacks but never bit his tongue. He refused appendectomy, quit his job as clerk in a grocery store, and went to his father's farm. Within two months the symptoms had disappeared and after six months he resumed his work, remaining well for nearly three years. Dec 15, 1934, he began to have epigastric distress, with burning, gnawing and "gas" occurring three or four hours after meals. Relief could be obtained by taking food or sodium bicarbonate. Dec 29, 1934, while at work he had pain in the right lower quadrant of the abdomen. Dr H V Sharp examined him at home, finding some tenderness in the epigastrium and in the right lower quadrant. The temperature was 98.4 F. There was no rigidity, nausea vomiting or abnormality of bowel action. Rectal examination revealed no tenderness. Because the conditions found were atypical and the history resembled that of peptic ulcer, a modified Sippy regimen was prescribed, and the next day all abdominal distress and tenderness had disappeared. Jan 5, 1935, while at work, the patient had a sinking spell and felt faint. When examined, the abdomen apparently was normal but the pulse rate was only 42 per minute. At this time I was called because of the bradycardia. The patient was 66 inches (168 cm) tall weighed 128 pounds (58 Kg), was well nourished and was apparently normal except for infected tonsils, slight internal strabismus of the left eye and a bradycardia of 43 per minute. The heart size and sounds were normal. The blood pressure in millimeters of mercury was 115 systolic 70 diastolic. The attempt to sit erect caused him to become faint, but he was weak, nervous and apprehensive even when lying down. He volunteered the theory that his "nerves upset him." Because of the history of nervousness and fainting, relieved by the taking of food I suspected hypoglycemia and prescribed one tablespoonful of Karo syrup with each feeding of milk and cream. It was not possible to hospitalize him. Two days later, when seen at my office he was enthusiastic about his recovery, stating that he felt better than he had been feeling in months. The pulse rate was 72 per minute the blood pressure was 122 systolic, 75 diastolic. He performed the stair-climbing test (twenty-seven trips over two steps, each 9 inches high, in ninety seconds) without the slightest evidence of distress or faintness. At the end of this

that hour the patient complained of feeling very faint, but his pulse rate was normal. An electrocardiogram taken when his pulse rate was 53 per minute, showed no evidence of myocardial damage or abnormalities of rhythm. The PR interval was at the upper limit of normal, 0.20 second.

A diagnosis of hyperinsulinism was made, the Sippy regimen was discontinued, and the patient was placed on a diet composed of protein 60 Gm, carbohydrate 120 Gm and fat 150 Gm daily, divided into six feedings. He also was given phenobarbital one-fourth grain (0.016 Gm) every four hours. On this regimen the abdominal distress did not return, there was

#### Dextrose Tolerance Test, January 15

Fasting blood sugar	78 mg per 100 cc
First hour	81 mg per 100 cc
Second hour	68 mg per 100 cc
Third hour	21 mg per 100 cc
Fourth hour	62 mg per 100 cc
Fifth hour	84 mg per 100 cc

#### Dextrose Tolerance Test July 5

Fasting blood sugar	67 mg per 100 cc
First hour	90 mg per 100 cc
Second hour	80 mg per 100 cc
Third hour	67 mg per 100 cc
Fourth hour	50 mg per 100 cc
Fifth hour	50 mg per 100 cc
Sixth hour	50 mg per 100 cc

no cardiac abnormality and the patient felt perfectly well except under unusual stress of work or worry. Because of the emotional strain connected with his job, in May 1935 he returned to the farm near Birmingham Ala. I referred him to Dr Seale Harris,<sup>4</sup> who wrote "The patient is greatly improved since going on the diet, and came in to see me just because you told him to come." A dextrose tolerance test was made by Dr Harris (curve B on the chart). The pulse rate was 72 per minute. The basal metabolic rate was plus 18 per cent. Dr Harris believes that hypopituitarism may be a factor in his case because of a decline in the patient's sexual powers. The patient wrote me Oct 6, 1935 that he is working again and said "I am following the diet carefully and am glad to say that I am steadily improving and can hold out to do my work real good."

#### COMMENT

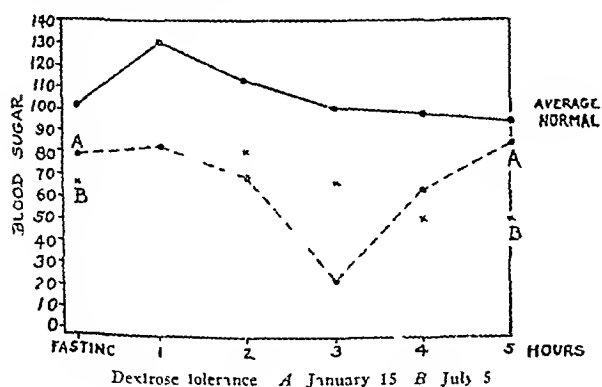
This patient probably had an attack of hypoglycemia in 1931 with spontaneous recovery from his symptoms. During that attack he had indigestion, tachycardia and possibly also extrasystoles. His second attack three years later was characterized by abdominal distress simulating that of duodenal ulcer, by weakness by nervousness and by bradycardia.

The cause of this bradycardia is purely speculative. Cannon, Melver and Bliss<sup>5</sup> in 1924 working on cats with denervated hearts concluded that the increase in heart rate during hypoglycemia resulted from a discharge of epinephrine by the adrenal glands in response to some sympathetic stimulation. Ernestine Riseman Stern and Alexander<sup>6</sup> in 1935 found also an increased cardiac output apparently due to the same mechanism. However, when the adrenals were intact the cardiac minute volume decreased and they concluded that hypoglycemia per se has a deleterious effect on the myocardium. Dworkin<sup>7</sup> in 1931 working with unanesthetized intact cats demonstrated that hypoglycemia causes central vagus stimulation as well as sympathetic adrenal excitation the antagonism of these two effects maintaining a relatively constant heart rate.

<sup>4</sup> Harris Seale. Personal communication to the author. July 5, 1935.  
<sup>5</sup> Cannon W B, Melver M A and Bliss S W. Studies on Conditions of Activity in Frogs and Cats. Sympathetic and Adrenal Mechanism for Mobilizing Sugar in Hypoglycemia. *Am J Physiol* 69: 466 (June) 1924.

<sup>6</sup> Ernestine A C Riseman, J I F Stern B and Alexander B. Mechanism of Circulatory Changes Accompanying Hypoglycemia. *Am J Physiol* 111: 440-44 (March) 1935.

<sup>7</sup> Dworkin Simon. Insulin and Heart Rate After Sympathetic and Vagotomy. *Am J Physiol* 96: 311-320 (Oct) 1931.



exercise the blood pressure was 160 systolic 90 diastolic and the pulse rate 80 per minute. After one minute the blood pressure was 135 systolic, 90 diastolic pulse rate 80 after two minutes, the blood pressure was 122 systolic 80 diastolic pulse rate 76. This exercise did not bring out any abnormality of the heart sounds and the results indicate an apparently normal myocardium. The blood count and urine analysis were normal. The blood Wassermann and Kahn reactions were negative. Jan 15 1935 Dr F C Potter performed a dextrose tolerance test using 175 Gm of dextrose per kilogram of body weight (curve 1 on the chart). The Folin and Wu method of blood dextrose determination was used. The third hour value of 21 mg per hundred cubic centimeters was checked because of the unusually low reading and was found to be correct. At

When the patient omitted just one meal there was no decrease in the cardiac rate, but he would have hypoglycemic symptoms consisting principally of nervousness and fatigue for about two hours, followed by a return of euphoria. Inspection of his dextrose tolerance test (curve A) shows the reason near the third hour, when the blood dextrose was low, hepatic glycogenolysis, which the Coris and Buchwald<sup>8</sup> have shown is due to an increased epinephrine secretion, raised the blood dextrose at least temporarily. In order to decrease the heart rate for the purpose of making the electrocardiogram, it was necessary that he refrain completely from carbohydrates for thirty-six hours. During that period he felt constantly miserable, weak and nervous. It is possible that the store of glycogen in the liver was lowered by this starvation to a point at which there could be no increase of blood dextrose from that source, a state of constant hypoglycemia being the result. It is possible also that this constant hypoglycemia caused an overstimulation of the adrenals, with eventual relative exhaustion of the supply of epinephrine. A combination of central vagus stimulation with myocardial depression due to the hypoglycemia evidently overbalanced the antagonistic sympathetic-adrenal effect, bradycardia being the result. Theoretically this may have been due to a lowered output of epinephrine.

716 Second National Building

#### VIABILITY OF SPERMATOZOA IN THE CERVICAL CANAL. PRELIMINARY REPORT

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This is the report of an interesting observation that I made on the viability of a specimen of semen obtained from a donor and introduced into the cervical canal of five different patients on the same day by means of a cannula.

It is interesting because a great deal of work has been done on the  $pH$  of cervical secretions, and the variation of the  $pH$  in the cervical canal. I refer to cases other than those infected with such conditions as gonorrhea, confining my reference to these five cases presenting normal healthy cervixes.

Dec 10, 1935 five patients were artificially inseminated from one donor. The semen was deposited by a cannula against the internal os. The uterus was not entered and very little pressure was used during insertion so as to avoid any forcible opening of the internal os. In cases 1 and 2 there were large cervical plugs of mucus presenting at the external os. These were left in situ. The cannula was introduced between the cervical plug and the cervical wall. A tenaculum forceps was used to straighten the canal. About 0.1 cc was used in each case after the specimen had been well shaken. Daily examinations were made of all five patients and a sterile earloop,

#### State of Viability of Spermatazoa in Five Cases of Artificial Insemination

Case No.	Dec 10 3 hrs	Dec 11 40	Dec 13 60	Dec 14 110	Pregnancy Obtained
1	Very active	Dead			Pregnant
2	Very active	Sluggish	Sluggish	Dead	Pregnant
3	Dead				None
4	Very active	Active	Sluggish	Sluggish	Pregnant
5	Sluggish	Sluggish	Dead	Dead	None

small size was introduced and withdrawn and the fluid examined microscopically. The observations are recorded in the accompanying table.

The pregnancies were ascertained by the Friedman test in conjunction with the usual examination and symptomatology.

These inseminations were made on the twelfth day after and including the first day of the patient's period so that in case 4 the spermatozoa were still alive on the sixteenth day.

Patients 3 and 4 had been inseminated the previous month with semen from a different donor, which had not caught. In

each instance the spermatozoa were dead on the forty-five hour examination done at that time.

The spermatozoa of the donor used in the test referred to herein have the greatest viability in the cervical canal of any donor so far recorded. As brought out in the table, at the 110 hour examination, on the fifth day, the spermatozoa were alive in case 4 and were still attempting to penetrate some pus cells that were introduced on the slide. Their movements were sluggish but there was life.

53 East Ninety-Sixth Street

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.

CHICAGO

NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.—Ed.

#### THE THERAPY OF NONTUBERCULOUS LUNG ABSCESS

IN COLLABORATION WITH DR. RALPH BOERNE BITTMAN  
Associate Professor of Clinical Surgery, Rush Medical College  
University of Chicago

The symptoms, clinical course and physical manifestations of lung abscess point to two diverse methods of origin. The first occurs as a result of the blocking of a bronchus by an infected clump of material, the second as a result of an infection in the interstitial pulmonary structure. The first might be called a bronchial abscess, the second an interstitial abscess. A large number of lung abscesses arise as a combination of the two conditions, but usually one form or the other, that is, the bronchial or the interstitial, predominates.

A classic form of bronchial abscess is the one arising shortly after some operation on the upper air passages. This abscess is usually situated in the right lower lobe, is accompanied sooner or later by copious expectoration, and roentgen examination discloses a more or less circular opacity with a well defined fluid level in it.

The classic form of an interstitial abscess is the one secondary to some generalized infection elsewhere in the body or in the lung itself. It may be situated in any part of the lung fields. The early roentgenogram shows a hazy irregular opacity without a fluid line. (It is taken for granted that all chest plates are taken with the patient either in the upright position or lying on his side.) The patient usually has a high fever. There may be no sputum or, if sputum is present, instead of being foul smelling and purulent it is odorless and mucoid. Sooner or later such an interstitial abscess usually breaks into a bronchus. After bronchial drainage has been established there is usually an improvement in the general condition of the patient, the temperature falls, and the sputum becomes copious and foul.

For the sake of therapy it is best to subdivide lung abscesses into the acute and chronic forms. An acute lung abscess is one of recent origin and, excepting for an occasionally well situated bronchial abscess that can

<sup>8</sup> Cori, G. T., Cori, C. F., and Buchwald, K. W. Mechanism of Epinephrine Action. Changes in Liver Glycogen and Blood Lactic Acid After Injection of Epinephrine and Insulin. *J. Biol. Chem.* 86: 375-388 (March) 1930.

be reached by the bronchoscope, it cannot be treated specifically. A chronic abscess, on the other hand, is one in which the pathologic changes have been fairly well established and, in this form, surgical treatment can often be successfully applied.

#### DIFFERENTIAL DIAGNOSIS

These forms of lung abscess must be differentiated for purposes of treatment from

(a) *Tuberculous cavity* If a tuberculous cavity is present, tubercle bacilli will always be found sooner or later on repeated examinations of the sputum. Continued absence of these organisms points in favor of a nontuberculous cavity. In addition, physical and x-ray signs of tuberculosis are much more apt to be found in the apex and on both sides of the lung. Pulmonary abscess is more usually limited to one lobe, most commonly the right lower lobe.

(b) *Bronchiectatic cavity* Contrast medium x-ray examination will differentiate a bronchiectatic cavity from an abscess, for in the former condition the cavity becomes well outlined by the adventitious shadow while the contrast medium seems to avoid a lung abscess, so that the dense contrast medium shadow will usually be outside the lung abscess shadow. It may even be surrounding it.

(c) *Carcinoma cavitation* When a patient of "cancer age" develops signs and symptoms of lung abscess without the history yielding the usual etiologic factors for the development of lung abscess, carcinoma must be thought of. The same principle applies to empyema, which is also not infrequently a sequel of thoracic carcinoma. The differentiation is made by roentgenography and bronchoscopy.

(d) *Abscess due to aspiration of foreign body* This is also suggested by the history and the diagnosis made by roentgenography and bronchoscopy.

#### PROPHYLAXIS

Prior to operations on the mouth and pharynx, the best possible oral hygiene should be employed. Disease of the teeth and the gums should be taken care of in a routine manner, and an antiseptic mouth wash, such as the Antiseptic Solution of the N. F. VI, should be used as a routine.

During tonsillectomy the following precautionary measures will help to prevent lung abscess: anesthesia below the point of abolishing the cough reflex; keeping the head lower than the body; keeping the pharynx clear of mucus and blood by means of a suction tube; and prompt ligation of all bleeding vessels.

Following operations of any kind, aspiration of vomitus must be prevented by constant attendance of a nurse until the patient can clear his throat voluntarily; coughing should be encouraged (not checked by opiates) and, if respiration is feeble, hyperventilation of the lungs by carbon dioxide-oxygen inhalation is indicated to prevent atelectasis.

*Bronchoscopic aspiration*—When during or shortly after an operation in the nose, throat or mouth the patient shows signs of pulmonary involvement (cough, cyanosis, possibly early fever) and later the roentgenogram shows atelectasis of a part of the lung, a bronchial embolus should be suspected. Then an immediate bronchoscopy is indicated. If the bronchoscopy reveals a plug in one of the main divisions of the bronchus, this plug can be removed by suction and the symptoms usually subside almost immediately. Unfortunately, as

a rule the bronchial plug lodges in one of the smaller inaccessible bronchioles out of reach of the bronchoscope.

#### TREATMENT

Lung abscess is one of the few kinds of abscess in which "nature" should be given every possible chance for evacuating the pus before surgery is resorted to. To draw correct indications for details of treatment, one must differentiate between the following three kinds of pulmonary abscess: (a) acute lung abscess, (b) chronic lung abscess and (c) multiple lung abscesses.

*Acute Lung Abscess*—This is to be treated along symptomatic lines, for the great majority of acute lung abscesses heal without the necessity of surgical procedure, and surgery in the presence of an acute lung abscess has a prohibitively high mortality rate. The following indications are present:

1 *Rest* Absolute rest must be employed not only during the febrile stage but also as long as there is x-ray evidence of the presence of an abscess. The patient's position should, however, be changed from side to side. This rest treatment should be accompanied by the diet and hygiene usually employed in fever (q. v.).

Paralytic (intestinal) ileus (q. v.) is apt to be a concomitant of almost any type of chest infection, hence the abdomen must be carefully observed.

If the patient is cyanotic he should be placed in an oxygen tent or receive oxygen through a nasal tube introduced into the pharynx. As, however, the shallow breathing resulting from the increased oxygen tension might interfere with a beneficial cough, it may be wise to remove the tent for short intervals.

If the patient is restless, morphine should be given in guarded doses, but the cough reflex should never be greatly impeded with sedatives.

2 *Resistance* One should aim to increase resistance. Transfusion of whole blood is undoubtedly the best "tonic" at the physician's disposal for the septic patient.

Neosarsphenamine should be given whenever spirochetes and fusiform bacilli are found in the sputum. It should be administered at the earliest possible moment and in rather small "tonic" doses (0.15 Gm intravenously) every other day, the effects being carefully observed. Heroic doses may harm the patient. In the late stages, little benefit is to be expected from this treatment. It is not a specific agent in this condition.

Hematinic or cardiotonic therapy may be demanded by the condition of the blood or the circulation.

Vaccine and serum therapy has, in general, been absolutely disappointing.

3 *Bronchial drainage* One should favor bronchial drainage. This means that checking the cough by means of morphine, codeine or any other antitussive is to be excepting possibly temporarily in the early stages when pain and insomnia threaten to exhaust the patient.

Postural drainage, i. e., assuming that position which results in maximum expectoration should be resorted to whenever the opening into the bronchus is large enough to secure good evacuation, and it should be continued for as long a period (from five to twenty minutes) and undertaken as often (five or six times a day) as the patient's strength and inclination permit.

Considerable experimentation may be required to determine the best position, but efforts to discover it are decidedly worth while. In abscesses of the upper lobe it may be the semireclining posture. In abscesses

of the lower lobe it may be secured by a complete head-down position, with the patient's hips and legs across the bed. Occasionally lying on the back over an inverted chair is effective. Postural drainage not only facilitates healing but may do away with the harassing cough during the day as well as the night.

In abscess of the lower right lobe, for example, the best postural drainage is usually obtained by lowering the patient's head until he is almost upside down. To get the patient in this position, one should have him lie across the bed and place a pus basin on the floor at the side of the bed and then have him swing over the bed until his elbows are resting on the floor on each side of the pus basin, with only his hips and legs remaining on the bed. In this position he will often expectorate huge quantities and thus drain himself thoroughly. Naturally, very sick or elderly patients with cardiac or arteriosclerotic changes may not be able to tolerate this position, and a compromise between the best possible position for drainage and that tolerated by the patient must be sought.

There are patients who find it easier to get up material from the bronchi when they are sitting up in

#### PRESCRIPTION 1—*Aromatic Inhalation Fluid*

R	Oil of eucalyptus	8 00 cc
	Oil of pine needles	8 00 cc
	Oil of betula	8 00 cc
	Tr of benzoin	to make 100 00 cc

M Label Add from 1 to 2 cc to hot water in a tea kettle to the spout of which a rubber tube has been attached the patient taking the free end of the tube in his mouth to inhale the steam

#### PRESCRIPTION 2—*Creosote Carbonate Emulsion*

R	Creosote carbonate	7 50 cc
	Tragacanth in fine powder	0 75 Gm
	Syrup	25 00 cc
	Alcohol	6 25 cc
	Compound spirit of orange	6 25 cc
	Distilled water a sufficient quantity	to make 100 00 cc

Mix ingredients in the order named and make an emulsion

Label From one to two teaspoonfuls in milk three times a day after meals

Each teaspoonful (5 cc) contains 0.375 cc of creosote carbonate

bed than when they are lying down. This is because pulmonary ventilation is facilitated by the upright position. In such patients it would be this position that should be resorted to for postural drainage.

Definitely contraindicated is drainage in the inverted posture in very sick patients, especially if they are cyanotic or have high fever, rapid pulse and a low vital capacity. In such patients the inverted posture may actually result in death.

It should be understood, of course, that postural drainage is of no value until the abscess has broken into a bronchus and that, indeed, it is of much greater importance in bronchiectasis than in lung abscess.

Bronchoscopy is chiefly of diagnostic value, but it may also permit removal of granulation tissue or otherwise increase the size of the opening so that the abscess drains more freely through the bronchial tubes. When this can possibly be accomplished, it is much to be preferred to surgical drainage through the chest wall. Hence bronchoscopy should always be employed before surgical opening of the abscess is done, but used otherwise, as an attempt to cure the disease, it is unsurgical. It cannot be carried out often enough to keep the abscess drained, and it may cause a spread of the inflammation. To be of value in the treatment of any abscess, drainage must be continuous or as nearly continuous as possible and a weekly or semiweekly emptying of any pus cavity is of little value.

4 Fetor of sputum. One should antagonize fetor of sputum by means of (a) Vapor inhalation. The Compound Creosote Inhalant (Recipe Book), consisting of equal parts of chloroform, alcohol and creosote may be inhaled from a chloroform mask and in as great a concentration and as continuously as the patient will tolerate. If this proves irritative, (b) steam inhalation, possibly flavored with an aromatic inhalation fluid (prescription 1) may be resorted to, provided it does not cause a feeling of "stuffiness" in the chest. (c) Taking creosote carbonate in ascending drop dosage, from 5 to 15 or more drops shaken up with hot milk, three times daily after meals, or preferably in the form of an emulsion of Creosote Carbonate (prescription 2 from the new edition of Recipe Book), may possibly be of service in lessening fetor, but it must not be employed to the extent of interfering with appetite and digestion or of damaging the kidney. (d) A mouth wash that is strongly flavored, e g, the "N F Dentifrice" (to be prescribed by this title), used immediately each time after the patient has expectorated his foul-smelling sputum, is usually very desirable. One puts into warm water a few drops of this dentifrice, enough to produce a slight turbidity, and thus secures maximum efficiency in the form of an aromatic mouth wash at minimum expense.

5 Roentgen irradiations. These may prove a useful adjunct by clearing up surrounding pneumonic consolidation and favoring liquefaction and early rupture of the abscess into the bronchus.

6 Collapsotherapy. This must be employed with discrimination. It may give rest to the inflamed part. It reduces the size of the cavity that requires obliteration, provided there is no dense abscess wall and there are no adhesions. The collapse may be induced by partial pneumothorax or, if the abscess is in the lower lobe, by phrenicectomy. The selection of cases for this type of therapy requires great care and should be made by one of large experience. The danger of empyema is increased by the use of artificial pneumothorax.

*Chronic Lung Abscess*—1 Surgical drainage. The presence of a more or less dense abscess wall that prevents the success of collapsotherapy indicates surgical drainage. Without it such patients are liable to develop anemia and cachexia, amyloidosis and clubbed fingers, osteoarthropathy and metastatic (e g, cerebral) abscesses. Impairment of proper aeration of blood—cyanosis—is the rule, and there is constant danger of fatal hemorrhage or of a perforation of the abscess with production of pyopneumothorax or mediastinitis. One must therefore not wait too long. When the patient's general condition is obviously deteriorating in spite of all efforts to improve it, one of the following operative procedures is indicated: (a) the one-stage operation, (b) the two-stage operation, (c) bronchoscopic drainage. Accurate localization by means of preliminary x-ray studies is essential before one can decide on the mode of approach. The one great difference between an abscess of the lung and an abscess elsewhere is that the approach to the lung abscess lies through an easily infected potential space, the pleural cavity. If the pleural cavity is obliterated and the lung fixed at the site of the abscess to the chest wall, as it often is, the drainage of such an abscess becomes as simple as the draining of any other subcutaneous collection of pus. If an attempt, however, is made to drain a lung abscess through a nonobliterated or free pleural

space, not only will the lung retract from the chest wall but the now huge pleural cavity will become infected, resulting in a massive empyema.

It is axiomatic that no lung abscess may ever be drained externally until after the pleural space at the site of drainage has been obliterated.

(a) Immediate drainage. It frequently happens in lung abscess situated in the periphery of the lung that the pleural layers will become adherent one to the other as a direct result of the underlying infection. Thus when it becomes time to drain the abscess, the pleural cavity being already obliterated, the drainage can be carried out through simple incision as if the abscess were in the chest wall.

After exposure by resection of a portion of a rib, the abscess is then opened by means of slow coagulation with the diathermy knife or cautery. One must of course, beware of using an explosive general anesthetic, such as ether or ethylene, during such an operation. On the other hand, the plunging of a forceps or of the finger into the cavity is dangerous. It may then be necessary to pack the cavity for the first twenty-four or forty-eight hours because of the occasional free hemorrhage. If electrocoagulation can be used, this may be prevented. The drainage channel is best maintained by a large red rubber tube. Red rubber tubes are x-ray opaque, which is often a decided advantage. Drainage must be continued until the abscess cavity has become obliterated.

(b) Two-stage operation. If adhesions have not been naturally formed, because the inflammatory process is in the depths of the lung far from the visceral pleura or because of the presence of an exudate, or for any other reason, it becomes absolutely essential as the first step in external drainage to obliterate the pleural space at the site of proposed drainage by artificially producing adhesions.

As soon as a "window" has been made into the chest by means of rib resection and before the pleura is incised, one should carefully look for respiratory movements of the lung. If these are present, a nick is made into the pleura, and, at once, gauze is packed into the opening and against the lung. After a week or ten days the packing is removed and the abscess entered as in the immediate drainage operation.

(c) Bronchoscopic drainage. Abscesses near bronchi may occasionally be reached through the bronchoscope.

From what has been said it is obvious that a chest must never be "needled" to make a diagnosis of lung abscess, as such a procedure will probably result in a complicating empyema.

2 Supportive measures. Adequate diet, plenty of bed rest, securing peace of mind and—if possible—a dry, equable climate are important adjuvants to favor the healing of the abscess even after surgical drainage.

*Multiple Lung Abscesses*.—In multiple embolic abscesses in different parts of the lung, surgical therapy is impossible. It is only when multiple abscesses are confined to one lobe and they have become chronic that cautery lobectomy is indicated. After a large part of the chest wall overlying the lobe has been taken away and firm pleural adhesions have been established one advances the cautery, eating out in successive operations more and more of the lung until all the abscesses have either been opened or eradicated. Thoracoplasty may finally expedite the healing. Occasionally, instead of cautery lobectomy, a one-stage lobectomy may be indicated.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER, Secretary

### KAISERAIRE FILTER VENTILATOR NOT ACCEPTABLE

Manufacturer: H. S. Kaiser Company, Chicago

This ventilator is marketed under the claims that it removes the pollen that causes hay fever and retards and prevents various diseases by preventing germs from entering the rooms and offices in which people live and work.

The filter mat, which is removable, consists of several layers of small paper tubes of decreasing diameter arranged in staggered "herring-bone" fashion, i. e., the first layer of parallel tubes is offset to the right, the next layer, which is smaller in diameter is offset to the left, the next to the right, and so on through the entire mat. This arrangement is suggested so that the air laden with dust and pollen, in order to pass through the entire filter, would have to travel in a zigzag manner. Small particles of matter, having inertia and believed to move in straight lines, would presumably adhere to the wall at the point of impingement. The filter mat is very heavily coated with a thick, very pungent oil, to which the dust and pollen particles are expected to adhere. Air is forced through the filter by means of two fans of the ordinary blade type.

In a laboratory acceptable to the Council, this unit was examined. It was installed in an ordinary bedroom window with the usual precautions taken as to sealing of cracks between unit and window and window-casing. Slides coated with a thin layer of petrolatum were exposed in various parts of the room which was closed for three twenty-four hour periods before the testing of the unit was begun for its pollen removing efficiency. During the last period the unit was operated continuously for twenty-four hours and at that time several slides were exposed at the outlet ducts of the unit. In the course of these three periods, no pollen grain was found on the slides exposed. However, there were numerous dust particles found on the slides which were exposed both in the room and at the outlet ducts of the unit.

At the intake of the filter, while it was in operation, 0.25 Gm of pollen of the giant ragweed (*Ambrosia trifida*) was suspended in the air. The pollen was released within a distance of five feet of the intake. Slides were exchanged in front of the outlet ducts at five minute intervals for a period of one hour, at the end of which time the slide was left for twenty-four hours. Then, at the end of the twenty-four hour period, a fresh supply of slides was placed before the outlet ducts again and allowed to remain for another twenty-four hours. The slides removed within five minutes showed the greatest number of pollen granules, twenty-one per unit area of 18 sq. cm. counted. As the time increased, i. e., toward the end of the hour slides exposed for five minutes showed an average of only three pollen grains per unit area counted. The slide for the first twenty-four hour period, which was placed before the outlet duct at the end of the one hour run, showed only seven pollen grains per unit area. The second twenty-four hour slide showed three pollen grains per unit area counted but, as the outside air by this time probably was almost free from the suspended pollen, doubtless these grains were blown off of the points where they had adhered initially.

Slides exposed in rooms in which dust was settling showed a total of eleven pollen grains per unit area counted for the first twenty-four hours, which represents eleven grains per cubic yard of air, and two grains per cubic yard of air for the second twenty-four hour period.

The pollen counts obtained are high when compared to the counts obtained on other types of filters, such as those of felt or cellulose. The pollen counts indicate a percentage of efficiency for this filter which may afford the very mildly sensitive hay fever subject some freedom from symptoms, but they indicate inadequateness of the filter for the severe type of case in which symptoms are manifested with pollen counts as low as two and three granules per cubic yard of air. The filter would be ineffective, also, in localities where very highly

antigenic pollens are found. As the filter admits dust particles up to 20 microns in diameter, it will admit pollen that is usually much smaller.

One objection to the unit is the highly pungent odor that is given off by the oil. This is most irritating and, in the opinion of the Council, would be a decided drawback to most persons with asthma and to many hay fever sufferers. Pungent, penetrating odors frequently aggravate such sensitive individuals, and a massive dose, such as one is subjected to with this unit, may be harmful to many patients.

In the opinion of the Council, the Kaiseraire Filter Ventilator does not possess adequate efficiency for removing pollen from the air, the volume of air it displaces is insufficient for comfort, and the presence of a pungent, penetrating odor is considered objectionable and possibly harmful to sensitive individuals. Therefore the Council on Physical Therapy voted not to include the Kaiseraire Filter Ventilator in its list of accepted devices.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT  
PAUL NICHOLAS LEECH Secretary

#### THE STATUS OF CERTAIN QUESTIONS CONCERNING VITAMINS

As a result of the increasing importance of questions concerned with vitamin containing foods and medicinal preparations, the Council on Pharmacy and Chemistry and the Committee on Foods of the American Medical Association appointed a joint cooperative committee for study of this field with instructions to report to the two parent groups. The Cooperative Committee consisted of Prof. W. E. Anderson, Dr. E. M. Bailey, Dr. K. D. Blackfan, Dr. S. W. Clausen, Dr. Morris Fishbein, Mr. Raymond Hertwig (resigned Dec. 31, 1935), Dr. P. C. Jeans, Dr. P. N. Leech, Dr. E. M. Nelson, Dr. W. W. Palmer, Dr. G. F. Powers, Dr. L. J. Roberts, Dr. M. S. Rose and Dr. Torald Sollmann.

At a meeting in Chicago October 18-19 the Cooperative Committee arrived at conclusions which have been considered by the Council and the Committee on Foods. The following is a summary of the Council's decisions based on the Cooperative Committee's recommendations which has been authorized by the Council for publication for the information of physicians, manufacturers and the public. Certain other recommendations of the Cooperative Committee will be published by the Committee on Foods.

**Lay Advertising of High Potency Vitamin Preparations.**—In the deliberations of both the Cooperative Committee and the Council it was brought out that considerations of the varying potency of oils, concentrates and crystallized preparations together with those of proved clinical effectiveness and recommended dosage combine to make impossible a categorical ruling on this subject. The Council decided that it would consider vitamin products for advertising both to the public and to the profession on the basis of the general principle that advertising to the public of vitamin preparations for prevention of disease [but not for the treatment of disease] shall be permitted provided the dosages are within the established concentrations which are considered safe, also that the Council shall not accept for sale to the public concentrates or pure forms of vitamins when the facts as to dosage are not available or when the daily dosage recommended is beyond that considered safe. Furthermore that usefulness and necessity as a prophylactic must be established.

The Council in its annual meeting later, adopted the following specific rulings based on the foregoing decisions:

1 Cod liver oil and preparations made by the addition of therapeutically indifferent substances to the untreated oil such as emulsions and malt preparations may be advertised to the public if the prescribed daily dose provides at least 6,250 units

of vitamin A and 625 units of vitamin D. Those are the numbers of units provided by two teaspoonfuls of cod liver oil complying with the N. N. R. standard.

2 Preparations of vitamins A and D other than those included under 1 may be advertised to the public if the prescribed daily dose provides not more than 10,000 units of vitamin A and not more than 1,000 units of vitamin D.

3 Preparations of vitamin A which do not contain a therapeutically significant quantity of vitamin D and for which no recommendations for vitamin D are made may be advertised to the public if the prescribed daily dose provides not more than 10,000 units of vitamin A.

4 Preparations of vitamin D which do not contain therapeutically significant quantities of vitamin A and make no representations for vitamin A may be advertised to the public if the prescribed daily dose provides not more than 1,000 units of vitamin D.

**Dosage of Cod Liver Oil.**—The vitamin A potency (as well as the vitamin D potency) of the official cod liver oil is now higher than that of the cod liver oil on which was based the dosage heretofore recommended in N. N. R. (namely, for infants 3 teaspoonfuls and for adults 6 teaspoonfuls daily). In addition, the lower limit of vitamin A potency per gram of the cod liver oils accepted for N. N. R. is higher than that of the official oil. In view of this the Cooperative Committee considered whether or not a corresponding reduction should be made in the recommended dosage on the basis of vitamin content. It was pointed out that the recommended dosage for infants is largely empirical, though it corresponds to the widest general practice. It was further pointed out that the adult need of vitamin D (except in certain instances) is problematic and that there is a lack of data on the basis of which to determine an adult dosage of vitamin A. The Cooperative Committee referred the question back to the Council for categorical decision. The Council, after considering the report of the Cooperative Committee's deliberations, set the dosage of cod liver oil for infants at two teaspoonfuls daily. This is in effect the dosage statement which will appear in N. N. R. 1936.

**Presence of Antioxidants as Preservatives Particularly in Halibut Liver Oil and Other Fish Liver Oil Preparations.**—At its February 1935 meeting the Council took the following action in reference to antioxidants that manufacturers of accepted products be informed that under conditions of ordinary usage there does not appear to be necessity for use of hydroquinone for the proper preservation of cod and halibut liver oils and that, until more convincing evidence in favor of the practice is submitted, it may not be permitted (Abstracts of Minutes of Annual Council Meeting, THE JOURNAL, June 1, 1935).

Representatives of three firms have requested the Council not to place into effect this ruling. It was the contention of the representatives of these firms (1) that hydroquinone aided in preserving vitamin A activity during the interval between the refining of the oil and the filling of it into bottles or capsules, (2) that after the consumer obtained the fish liver oil he may have used it (particularly when in bottles) in such a manner that the air would increase rancidity and reduce vitamin A potency of the oil. The three firms presented briefs the purpose of which was to show that the use of hydroquinone per se was harmless. Among the arguments in favor of the use of hydroquinone was the statement that its use as an antioxidant over a period of years without reports of fatalities constituted a confirmatory mass experiment.

The Cooperative Committee on Vitamins considered this evidence and came to the conclusion that the firms had failed to demonstrate that under ordinary conditions of use the oxidation which halibut liver oil undergoes is serious, that the matter seemed to involve largely a controversy between certain patent-owning interests.

The Committee pointed out that it is as important to know whether or not the product formed by oxidation of hydroquinone, possibly quinhydrone, is injurious, as it is to know whether hydroquinone itself is injurious. The Committee felt that the mass experiment involved in the use of this antioxidant over a period of years without report of its causing agranulocytosis or similar conditions was of some weight as evidence.



in favor of its harmlessness. The Cooperative Committee emphasized, however, that this was not sufficient evidence of the harmlessness of the use of hydroquinone.

It was the consensus of the Committee that the previous action of the Council should stand but that it be not enforced for another six months in order to permit firms opportunity to gather evidence of a worthwhile nature and that in the meantime no claims for stabilization shall be made.

The Council approved the conclusion of the Cooperative Committee and voted to extend the time for the submission of evidence by the firms for a period of six months.

*Use of Carbon Dioxide as a Preservative and as a Means of Increasing Palatability*—The Cooperative Committee considered this question as the result of claims made by a certain firm for its cod liver oil which is impregnated with carbon dioxide. It was felt that there has not been adduced evidence to warrant permitting a statement that carbon dioxide under ordinary conditions of usage remains dissolved in fish liver oil for a sufficient length of time to impart any change in palatability.

The Cooperative Committee recommended that firms be asked whether or not they have been able to obtain any better evidence to warrant the claim that carbon dioxide when used in fish liver oils increases palatability and prolongs stability, and that in the meantime such claims be not recognized until these firms can produce the satisfactory evidence requested.

The Council adopted the recommendation of the Cooperative Committee.

*Prophylactic and Therapeutic Claims Permissible for Vitamins A, B (B<sub>1</sub> and G), C and D*—The Cooperative Committee adopted for further consideration a statement of permissible claims for each of these vitamins which had been formulated by the Council's referee for vitamin preparations. These statements were considered by individual members of the Cooperative Committee and referred back to the Council's referee, who submitted a revision of the statements to the Council. The Council considered them further and adopted the following statements, which are to appear in N N R 1936.

### Vitamin A

The term 'vitamin A' has been applied to any one of several substances or to a mixture of them producing a certain demonstrable specific physiologic effect. It seems to have been definitely established that there are at least five substances which can produce to some degree this characteristic response in the animal body. These are vitamin A itself, alpha, beta and gamma carotene and cryptoxanthin. The last four of these the precursors of vitamin A, are produced in the plant kingdom, and ingestion of these substances by most animals results in varying degree (depending on the species of animal and the precursor fed) in the formation of a compound having the empirical formula  $C_{55}H_{100}O$  and to which no other name than vitamin A has been ascribed. The extent to which the different precursors of vitamin A can be converted to vitamin A by different species of animals has not definitely been established. The exact function of vitamin A has not been established but the pathologic picture which results from varying degrees of deficiency has been the subject of extensive investigation.

The claims recognized under vitamin A shall be recognized under the precursors of vitamin A only under conditions specified for Carotene (New and Nonofficial Remedies 1936).

*Allowable Claims*—1 Evidence for the significance of vitamin A in human nutrition is based on the fact that a characteristic eye disease, usually called xerophthalmia results from a deficiency of this vitamin.

2 It is generally agreed that the first symptom or at least one of the first clinical symptoms of vitamin A deficiency is night blindness or nyctalopia. For this type of night blindness vitamin A is a specific. Cases of nyctalopia exist which do not respond to treatment with vitamin A. These may be due to congenital defects or to other conditions than vitaminosis A.

3 Present indications are that vitamin A is an aid toward the establishing of resistance of the body to infections in general only when there has been an exhaustion of body reserves of the vitamin and the ingestion of vitamin A is inadequate. It certainly has not been shown to be specific in the prevention of colds, influenza and such infections nor has it been demonstrated that ingestion of vitamin A for in excess of that necessary for normal body function and readily obtained from a properly selected diet is an aid in preventing various types of infections.

4 A deficiency of vitamin A results in a retardation of growth when body stores of the vitamin have been depleted but it must be borne in mind that vitamin A is no more important in contributing to normal growth than any one of the other vitamins, the essential elements or amino acids. Statements conveying the impression that vitamin A is more important in promoting growth than other food essentials are therefore considered misleading and objectionable.

5 There is at the present time inadequate evidence to warrant the claim that the ingestion of sufficient vitamin A will prevent the formation of renal calculi in man.

### Vitamin B (Complex)

The term 'vitamin B' should not be used loosely.

Ample evidence indicates that two or more physiologically active substances play a role in relation to numerous phenomena formerly explained in terms of vitamin B alone. At least two substances have received general recognition in this connection; the existence of others has been reported but the evidence submitted has not been accepted as convincing by all investigators in this field. The differences between the various products referred to is now substantiated by chemical evidences. Thus the crystallized antineuritic vitamin of Jansen and Donath and of at least four other investigators, is a nitrogenous compound of defined composition; the so-called vitamin G appears to belong to the flavine group of compounds that have been extensively studied by Kuhn and others. There is no satisfactory evidence that the flavines have any definite relationship to the development or cure of pellagra.

It seems desirable therefore to insist that claims shall refer clearly to one or more of the following:

- (a) Vitamin B<sub>1</sub> and/or
- (b) Vitamin C (B<sub>2</sub>) and/or
- (c) The undifferentiated mixture of these present in many foods which might be referred to as vitamin B complex or undifferentiated vitamin B.
- (d) Reference to Pellagra preventing value shall be limited to products which have actually been tested for such value and shall not be based on so-called vitamin G assays with rats.

It shall be understood that the terms in (c) above refer not only to vitamins B (B<sub>1</sub>) and G (B<sub>2</sub>) but also to other alleged members of the vitamin B complex. If some other alleged member of the complex is being referred to, the statement might be allowed provided the investigator, who has alleged the existence of the new factor, is cited.

*Allowable Claims*—1 Vitamin B<sub>1</sub> may be cited as of value in correcting and preventing anorexia of dietary origin in certain cases.

There are many causes of anorexia, some referable to infections and the reactions thereto, others to organic disorders, and still others related to faulty diet. Where there is no rather obvious cause of anorexia in question other than a possible dietary one, it is permissible to claim that vitamin B<sub>1</sub> may be of therapeutic value when the condition to be treated is due to a deficiency of that vitamin.

2 Vitamin B<sub>1</sub> is of value in securing optimal growth of infants and children.

Citations in the literature support the claim that a sub-optimal supply of vitamin B<sub>1</sub> results in limitation of growth.

3 Vitamin B<sub>1</sub> is of value in correcting and preventing beriberi.

The consensus of the students of beriberi is that this disease is due primarily to an insufficient supply of vitamin B<sub>1</sub>. There are conditions which probably could be designated as latent beriberi; it does not seem wise at this time to attempt the formulation of a definite statement covering such conditions other than that presented in item 5.

4 Because vitamin B<sub>1</sub> is a dietary essential its administration in concentrated form is of value in some conditions where difficulty in utilizing ordinary foods in the usual way is encountered.

The present status of research on the clinical use of vitamin B<sub>1</sub> for specific diseases other than beriberi and for infant feeding is such that definite claims for therapeutic value in relation to such diseases cannot be recognized. Its use may be indicated, however, in such restricted conditions as pernicious vomiting of pregnancy, tube feedings through a jejunal fistula and the like, because the above permitted statement applies to such conditions and gives an intelligent basis for such therapy.

5 Claims for concentrates of vitamin B<sub>1</sub> offered for clinical use should state the potency in terms of the International Unit. The term concentrate or synonym will not be recognized if the product does not exceed a

potency of 25 International units per gram (or per cubic centimeter), or if it is a natural product which may have been subjected to a process of deliydration

6 In connection with medicinal foods acceptable for N N R, the claim that a food is valuable because of its vitamin B<sub>1</sub> content may be made only if it provides in the quantity of food consumed daily at least 200 units of vitamin B<sub>1</sub>.

Any food preparation having less than such an amount cannot be regarded as a noteworthy medicinal source of the vitamin. In the light of present knowledge the daily requirement for vitamin B<sub>1</sub> appears to be not less than 50 units (International) for the infant and 200 units (International) for the adult.

7 There are many experimental indications in the literature indicating other possible functions of vitamin B<sub>1</sub>, e. g., in influence on intestinal motility and neuritis of various types, and also indications of greatly augmented requirements when metabolism is increased as in hyperthyroidism, neuritis of various types, and infections. It seems too early to permit advertising claims for these items.

#### Vitamin C Cevitamic Acid

There is ample experimental and clinical evidence to show that vitamin C in optimum amounts is an essential dietary constituent. Suboptimal amounts result in the development of clinical and pathologic phenomena to which the descriptive term scurvy has been applied.

The chemical nature of the formerly unidentified essential food substance has been discovered. Its empirical formula is  $C_6H_8O_6$ . Vitamin C has been prepared in commercial quantities both from natural sources and through synthesis. The Council on Pharmacy and Chemistry of the American Medical Association has adopted the nonproprietary designation cevitamic acid for the crystalline vitamin C introduced as Ascorbic Acid.

*Allowable Claims*—1 Definite claims for the therapeutic value of vitamin C should be permitted only in relation to scurvy until further clinical or experimental evidence has substantiated its usefulness in other states.

2 Vitamin C is acceptable for the correction and prevention of scurvy. This effect has been established experimentally and by clinical investigation.

3 It may be permissible under certain conditions to refer to the therapeutic value of vitamin C in early and latent scurvy. Convincing clinical evidence has established that this state does occur. It would be well to emphasize the fact that the diagnosis rests, however, on the basis of roentgenologic evidences in the long bones, and possibly failure to excrete an optimum amount of cevitamic acid in the urine.

4 Dental caries, pyorrhea, certain gum infections, anorexia, anemia, undernutrition and infection alone are not in themselves sufficient indications of vitamin C deficiency but according to experimental and clinical investigation they may be concomitant signs of vitamin C deficiency. Therefore, it would be permissible to accept the claim for the therapeutic value of vitamin C in these symptomatic conditions *only when* it is definitely stated that they are the consequences of a deficiency or suboptimal amount of vitamin C or when there is a pathologic interference with assimilation of the amount necessary for the preservation of health.

5 Unless more convincing evidence is present than is now available, no claim referable to the anti-infective effect of vitamin C will be recognized. Secondary infections are characteristic of disturbances of nutrition, particularly in all vitamin deficiency diseases. It has not been established that vitamin C has a therapeutic effect which directly influences associated secondary infections in scurvy.

6 Because vitamin C is a dietary essential its administration in concentrated form is of value in conditions where difficulty in introducing orally or utilizing ordinary foods in the usual way is encountered. Vitamin C (cevitamic acid) is accepted as an essential dietary constituent in infant feeding but it should not be accepted for use in the treatment of diseases except according to the conditions mentioned above. It is generally administered in the form of a vitamin C carrying juice. When there is persistent vomiting, diarrhea or any other condition preventing its utilization in proper amounts it would be permissible to give vitamin C parenterally in concentrated form as sodium cevitamate.

7 Concentrates of vitamin C offered for clinical use must state the potency in terms of the International unit. The

International unit for vitamin C, which was formerly defined as the vitamin C activity of 1 cc of lemon juice, has now been defined as the vitamin C activity of 0.05 mg of 1 cevitamic acid (ascorbic acid). This is the quantity of 1 cevitamic acid usually found in 0.1 cc of lemon juice.

8 The claim that a food is valuable because of its vitamin C content should be permitted only if it provides a daily intake of at least 250 units of vitamin C.

9 A reasonable general statement regarding allowable claims for vitamin C would be as follows:

An optimum amount of vitamin C should be supplied at all ages for its therapeutic value in preventing the development of acute or latent scurvy.

Claims for therapeutic value of vitamin C may be accepted when the agent is described as a corrective measure for scurvy due to a demonstrable absence or a suboptimal quantity in the diet, or in cases in which it is definitely known that there is interference with the absorption of an optimal amount.

Advertising of vitamin C for such symptoms as failure to gain in weight or stoppage of growth, anorexia, anemia, infections, symptoms referable to the central nervous system or hemorrhagic conditions cannot be accepted unless it is definitely stated that the symptoms are referable to a demonstrable deficiency of vitamin C.

The cevitamic acid equivalent or potency in terms of International units should be stated in all dosage claims for vitamin C. Cevitamic acid (vitamin C) is easily decomposed in presence of certain other substances, therefore, care should be exercised against administering it (or orange juice) in mixtures, or by such procedure as to render it ineffective.

#### Vitamin D

The term "vitamin D" is applied to one or more substances which function in the proper utilization of calcium and phosphorus. Vitamin D has been produced in crystalline form as one of the products of ultraviolet irradiation of ergosterol and shown to be a sterol having the empirical formula  $C_{28}H_{44}O$ . Naturally occurring vitamin D has not been isolated, but there is evidence suggesting that it may not be identical with the artificially produced substance, and that more than one natural compound may function as the vitamin.

*Allowable Claims*—1 Vitamin D is recognized as a specific in the treatment of infantile rickets, spasmophilia and osteomalacia, diseases which are manifestations of abnormal calcium and phosphorus metabolism. Vitamin D is valuable in the preventive as well as curative treatment of these diseases. Complications such as certain renal diseases or glandular malfunction may preclude normal response to vitamin D therapy. During acute infections, especially of the gastro-intestinal tract, vitamin D may prove ineffective because poorly absorbed.

2 Direct exposure of the skin to ultraviolet light from the sun or from artificial sources results in the formation of vitamin D within the organism but the Council cannot recognize statements or implications that vitamin D has all beneficial effects of exposure to sunshine.

3 There is clinical evidence to justify the statement that vitamin D plays an important role in tooth formation and maintenance of normal tooth structure, but there is no warrant for the claim that adequate vitamin D intake will insure normal tooth structure or that adequate vitamin D intake will prevent dental caries.

4 Animal experimentation has shown that correction of an inadequate intake of vitamin D results in the more economical utilization of calcium and phosphorus and also that the undesirable effects of improper ratios of calcium and phosphorus in the diet can largely be overcome by normal intake of vitamin D. The importance of these observations in their application to man is not entirely apparent because of the lack of adequate clinical evidence showing the availability of different forms of calcium and phosphorus, but it may be stated that vitamin D has a favorable influence on calcium and phosphorus metabolism.

5 The vitamin D requirement is greatest during the period of infancy. Beyond the age of infancy the exact vitamin D requirement of man under any specified conditions is not known but it appears that the requirement during pregnancy and lactation is increased.

*Status of Vitamin E*—The Cooperative Committee recommended that the Council declare that there is no evidence to indicate that vitamin E has therapeutic merit and that the Council do not accept any vitamin E preparations.

**Molt Preparations with Cod Liver Oil and I ntersterol Claimed to Contain Vitamins B<sub>1</sub> and G**—The Council maintains that if a preparation contains vitamins B<sub>1</sub> and G as well as A and D, in therapeutic amounts, it cannot be considered acceptable, since no evidence has been adduced to show that combinations of vitamins A, B<sub>1</sub>, D and G are rational therapeutically or pharmacologically. On the other hand if the vitamins B<sub>1</sub> and G are natural contaminants in the vehicle, it is held that they are present in such small amounts as not to be therapeutically significant and claims for them may not be recognized.

The Cooperative Committee took the position that in the case of certain accepted preparations containing vitamins A, B (complex) and D the Council should not recognize claims for the vitamins B and G content in view of the insignificant amounts present. The Council endorsed the opinion of the Cooperative Committee and manufacturers of accepted products of this category have been informed that no claims for the vitamin B and G content of such preparations will be recognized and that after Jan. 1, 1937, not even the statement that these vitamins are present should be made, because of the danger of arousing false implications.

**High Potency Viosterol Preparations**—Inquiries have been received from various sources concerning the marketing of high potency viosterol preparations, particularly for use in the treatment of rheumatism. The Cooperative Committee felt that experimentation with products in cases of arthritis is susceptible to so many misinterpretations that those making inquiry should be advised to use great caution in such experiments, and that the use of very high potency preparations by general practitioners at this time is not to be commended.

Inquiries have been received from a manufacturer of pharmaceuticals and Dr. C. I. Reed whether or not the Council would suggest to the Wisconsin Alumni Research Foundation that it encourage the sale of high potency viosterol preparations to the physician by granting their licensees the privilege to market such high potency preparations.

The Council concurred in the Cooperative Committee's recommendation that the manufacturer and Dr. Reed be advised (1) that the Council is never opposed to experimental investigations under proper directions and facilities, but that the Council does not feel that there is at this time sufficient evidence to warrant the acceptance of viosterol preparations of very high potency, and (2) that it declines to suggest to the Wisconsin Alumni Research Foundation that the marketing of such high potency preparations to the medical profession by its licensees is advisable.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

## TETANUS TOXOID, ALUM PRECIPITATED

**Tetanus Anatoxin**—A preparation of tetanus toxin after the formaldehyde detoxifying procedure of Ramon whereby the toxic action is greatly diminished with no loss of antigenic potency. Alum precipitation furthers this action by freeing the antigenic substance from the reaction-producing proteins of the culture medium.

**Actions, Uses and Dosage**—Tetanus toxoid is recommended for the production of active immunity to tetanus. One cc is injected subcutaneously, preferably in the region of the deltoid. Approximately three months later the second and final injection of 1 cc is given. The immunity thus produced is reasonably persistent. However, it has been shown that if some time after the original immunization a single injection of 1 cc of toxoid is given there results a prompt (within two weeks) and marked rise in the antitoxic titer of the serum. Thus in cases of injury to persons previously immunized an injection of tetanus toxoid may suffice to protect against tetanus in place of the usual tetanus antitoxin. It should be borne in mind that in these cases several weeks is required following the second injection of toxoid before immunity may be assumed to be well established. Therefore in any dubious instance the conservative course is the administration of antitoxin. Active

immunization to tetanus would appear to be a desirable procedure in the case of individuals whose work subjects them to a greater than normal hazard of the disease.

The National Drug Co. Philadelphia

**Refined Tetanus Toxoid (Alum Precipitated)**—Marketed in packages of two 1 cc vials (one immunization treatment) and in packages of one 10 cc vial (five immunization treatments).

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary

### CELLU BRAND CARROTS, WATER PACKED

**Distributor**—Chicago Dietetic Supply House Inc., Chicago

**Packer**—Eugene Fruit Growers Association, Eugene, Ore.

**Description**—Canned carrots, packed in water.

**Manufacture**—Selected carrots are topped, washed, preheated to loosen the skin, mechanically peeled, inspected, trimmed, graded and hand packed in cans. Small carrots are packed whole, large sizes are diced, quartered or sliced. The cans are filled with water, heated, sealed and processed.

Analysis (submitted by distributor) —	per cent
Moisture	90.3
Total solids	9.7
Ash	0.8
Fat (ether extract)	0.3
Protein (N X 6.25)	1.0
Crude fiber	1.0
Starch (diastase method)	5.3
Carbohydrates other than crude fiber (by difference)	6.6

**Calories**—0.3 per gram, 9 per ounce.

**Claims of Manufacturer**—Choice quality carrots packed with out added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

### STEPHENS BRAND GRAPEFRUIT JUICE

**Manufacturer**—Natural Food Products Company, Orange, Calif.

**Description**—Canned Arizona and California grapefruit juice, retaining in high degree the natural vitamin C content.

**Manufacture**—Arizona and California tree ripened grapefruit is thoroughly washed, inspected, automatically cut and reamed. The juice is strained, deaerated, treated with ultraviolet rays for inactivation of enzymes, vacuum sealed and heat processed.

Analysis (submitted by manufacturer) —	per cent
Moisture	88.3
Total solids	11.7
Ash	0.4
Fat (ether extract)	0.2
Protein (N X 6.25)	0.7
Reducing sugars as invert sugar	5.8
Nonreducing sugars as sucrose	2.2
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	8.9
Titratable acidity as citric acid	1.4

**Calories**—0.5 per gram, 14 per ounce.

**Assay**—Chemical determination (iodine titration) of ascorbic (ascorbic) acid shows 0.5 mg. per cubic centimeter.

**Claims of Manufacturer**—Practically equivalent to fresh juice in vitamin C. For all table and dietary uses of fresh juice.

### MILL BROOK BRAND EVAPORATED MILK

**Distributor**—Winner Market, Lock Haven, Pa.

**Packer**—The Page Milk Company, Merrill, Wis.

**Description**—Unsweetened evaporated milk. The same as Page Brand Evaporated Milk (THE JOURNAL, May 30, 1931, p. 1872).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 16, 1936

## THE ARMY MEDICAL LIBRARY

William H. Welch once asserted that the Army Medical Library and its *Index Catalogue* are America's greatest gift to medicine. Sir William Osler was so grateful for its services that he gave to the library the manuscript of his farewell address delivered at Johns Hopkins University. From a small collection of books placed in the office of Surgeon General Lovell a hundred years ago the Army Medical Library has grown to be today the largest medical library in the world.<sup>1</sup>

The century of growth cannot be reviewed without reference to an incident in the life of John Shaw Billings, an army surgeon. When writing his graduating thesis at Miami Medical College, Billings had difficulty in finding statistics on the results of certain surgical operations. For six months he ransacked the libraries in Cincinnati, Philadelphia, New York and elsewhere. He became convinced that there was not a medical library in the country in which a student would find a large part of the literature relating to any medical subject. This experience led him, when the opportunity came years later to establish for American physicians a medical library and an index that would spare them the drudgery of consulting thousands of texts to find a dozen useful references. Billings began his great work of collecting and cataloguing medical literature in 1868, with a few thousand dollars left over from the Civil War hospital funds turned over to him by the surgeon general. He envisioned the greatest undertaking in bibliography that had ever been done in any scientific field. In 1876 he published a specimen catalogue of the library and submitted it to the medical profession for criticism. In style and arrangement this "Specimen Fasciculus" was practically the same as that of the *Index Catalogue* of today. Billings continued the preparation of the *Index Catalogue*, and at length Congress appropriated funds for the printing. Three complete series of the *Index Catalogue*, comprising many volumes, have been published. Volume one of

the fourth series has gone to press and will appear during 1936, to mark the hundredth birthday of the Army Medical Library. These volumes catalogue and index all the meritorious medical books, theses and articles that have been published throughout the world. In 1895, when the first series of the *Index Catalogue* was completed, Billings left the army and devoted himself to consolidating and cataloguing the public libraries in New York City and later to the organization of the Carnegie Institution in Washington.

Billings established in 1879 another monumental work, the *Index Medicus*, which provided monthly a classified record of the current medical literature of the world. Its classification was more general and less subdivided than that of the *Index Catalogue*. The *Index Medicus* was never a government publication. The subscribers were limited chiefly to medical libraries, and there were financial difficulties from the start. About 1899, when the founders could no longer continue publishing the *Index Medicus*, Osler made a plea before a meeting of the American Medical Association for physicians to subscribe in order to keep it alive. In 1903 the Carnegie Institution at Washington took over the *Index Medicus* and continued to sponsor its publication until 1927, when it was merged with the *Quarterly Cumulative Index*, which had been published by the American Medical Association since 1916. The combined index has since been known as the *Quarterly Cumulative Index Medicus*.

The amount of space occupied by the Army Medical Library in Washington during the early years was so small that the boxes of books had to be opened in the yard. Congress then appropriated \$200,000 for a building, and in 1887 the present three story building occupied by the library and museum at Seventh and B streets S.W. was opened to the public. That building has been occupied for fifty years and has long since been outgrown. The overflow of books now crowds the basement and every nook. The need for a larger building was so obvious as long ago as 1919 that Congress purchased a new site for the library at the Army Medical Center on the outskirts of Washington.

The Army Medical Library has now more than 941,181 volumes. It has about 19 per cent as many volumes as the great Library of Congress, and yet it receives about 98 per cent as large an annual appropriation for purchases. It has some of the rarest books in the world. Of about 600 medical incunabula known, it has 450. The Army Medical Library has the only known copy of some medical works. It contains a more complete file of French theses than the Library of the Medical Faculty of Paris.

In addressing the International Medical Congress in London in 1881, Billings said "If the entire medical literature of the world, with the exception of that which is collected in the United States, were now to be destroyed, nearly all of it that is valuable could be reproduced without difficulty."

<sup>1</sup> Hume E. E. The Centennial of the World's Largest Medical Library. The Army Medical Library of Washington. Mil. Surgeon 78-2-1 (April) 1936.

## "FULL STEAM" OR CAUTION IN SOCIAL SECURITY

When the Committee on the Costs of Medical Care brought in its final report, *THE JOURNAL*<sup>1</sup> pointed out that the choice seemed to lie with the medical profession and the public as to whether or not changes in the nature of medical practice were to come by evolution or by revolution. In the years that have elapsed, the public seems wisely to have chosen to proceed cautiously and carefully rather than to order "full steam ahead." Nevertheless, proponents of socialized medicine continue to urge and to make propaganda for the revolution that the medical profession and the public want to avoid. Conspicuous among those who demand haste are Michael Davis, representing the Rosenwald Foundation, Nathan Sinai, who has at various times represented various groups, and Dr. Hugh Cabot, who seems mostly to represent himself.

In a recent discussion on the subject of social security, held in the Graduate School of Business Administration of Harvard University these three proponents of speed again stated their points of view. Dr. Cabot did not hesitate to say that the medical profession does not seem to be able to fit itself into an economic age and that it should long since have realized that it must become a business and cease to be a profession. Mr. Sinai deplored the manner in which his plans for Michigan had been opposed and indicated his impression that the medical profession in this country is an obstructionist body. Mr. Davis, who has on previous occasions stated his belief that medicine proceeds on a bicycle while civilization proceeds in an airplane, again bemoaned the delay of the American medical profession in adopting some of the plans which he and his associates of the Rosenwald Foundation have been so busily pushing during the last four years. In the course of their discussions, these proponents of socialized medicine condemned the principles adopted by the House of Delegates of the American Medical Association at the Cleveland and subsequent sessions as being planned to delay rather than to hasten progress. Any one familiar with the changes that have occurred, with the experiments that are now under way, and with the statements made by representatives of organized medicine during the past three years, will know that the allegations of these three propagandists are not warranted. The studies made by the Bureau of Medical Economics of the American Medical Association indicate that already many an ill founded and unwarranted experiment in changing the nature of medical practice has failed and disappeared. As yet there is no scientific evidence to indicate that any one of the plans now in effect represents the ideal.

The substantial progress of medicine has been brought about by a system of trial of test and experiment which is itself responsible for the substantial character of the progress. There is no more reason

why medicine should discard its scientific methods in performing social experiments than there is reason for discarding scientific methods and embarking on wishful thinking in the laboratory and faith-healing in the hospital. Reckless experimenters in the so-called social sciences may shout "full steam ahead!" The organization and structure of scientific medicine is more likely to be salvaged from the wreckage into which many of the other social and economic organizations are plunging by observing the caution which medical leaders know is imperative for a safe advance.

## CITRIC ACID IN METABOLISM

Among the more striking recent advances in nutrition are those concerned with the physiologic significance of the less well known constituents of plant and animal tissues. These substances are likely to be overlooked entirely when a dietary component is evaluated for nutritional purposes on the basis of the conventional food analysis alone. Thus the various carotenes and lycopanthine, which appear as natural pigments in plants, are now known to be precursors of vitamin A, the traces of copper, manganese and zinc occurring in plant and animal tissues and previously receiving little if any attention have been demonstrated to be indispensable for nutritive well being in the body, the small amounts of the nitrogenous base choline, which is rather widespread in food substances but which heretofore has been looked on as a pharmacologic agent with limited application is now known to exert a profound influence in certain phases of the metabolism of fat in the mammalian organism. In this category of less well known constituents of natural food substances, are certain known and doubtless other as yet unrecognized, organic acids and their salts. Malic, tartaric, oxalic, citric, benzoic and quinic acids have long been known to occur in plant saps and acid fruits and berries, the salts of some of these acids have received considerable attention because in the course of metabolism they are transformed to bicarbonate and thus promote alkalization of the body fluids. Renewed attention has recently been directed to citric acid, however, and some unsuspected facts have been discovered with respect to its metabolism.

Citric acid is a constituent of animal tissues and body fluids. It was isolated from milk in 1888 and the quantity has subsequently been found to be from 1 to 4 Gm per liter. It occurs constantly in human urine and has been found in the urine of many species of the lower animals. It is a constituent of blood, the ratio of distribution between plasma and cells in the dog being approximately 16<sup>1</sup>. Citric acid has been found in the aqueous humor, saliva, cerebrospinal fluid, the secretion of the male sex organs, and amniotic fluid. The output in urine is invariably increased by administration of alkali or of salts of organic acids that

<sup>1</sup> The Committee on the Costs of Medical Care editorial *J. A. M. A.* 99: 1950 (Dec. 1) 1932

<sup>1</sup> Pucher C. W., Sherman C. C. and Vickery H. B. *J. Biol. Chem.* 115: 235 (Feb.) 1936

increase the  $p_H$  of the urine. After meals the concentration in the urine is augmented, although this is independent of the change in reaction of the urine.<sup>2</sup> That citric acid is synthesized by the organism has been demonstrated by recent studies of Sherman, Mendel and Smith.<sup>3</sup> Three dogs were given a citrate-poor ration along with sodium bicarbonate for periods varying from eighteen to forty-five days. In these animals the excess citric acid excreted over that ingested was 5.2, 10.3 and 7 Gm. respectively over the entire experimental period. It was also observed in the course of this study that the concentration of citric acid in the urine after administration of bicarbonate was elevated to a far greater extent than was that in the blood, a fact suggesting active participation by the kidney in the process.

In further studies<sup>4</sup> the Yale investigators have shown that the body possesses a large capacity to oxidize citric acid. In different experiments in which the animals were maintained on a citrate-poor ration, amounts of from 0.5 to 2 mg. per kilogram of body weight were oxidized to the extent of more than 99 per cent. Under these conditions, i. e., when the free acid was given, there was no effect on the urinary  $p_H$ . Sodium citrate, on the other hand, produced a marked increase in the alkalinity of the urine.

The close parallelism between the excretion of citric acid and the change in reaction of the urine has suggested that it partakes in the biochemical mechanism whereby the acid-base balance of the body is regulated. Possibly it represents the end product of a type of metabolism emphasized only under certain conditions. Thus far the attempts to correlate the formation of citric acid with the metabolism of any one of the major foodstuffs have not been notably successful. The elucidation of the metabolic significance of this compound thus remains an alluring problem.

## Current Comment

### REGISTRATION UNDER HARRISON NARCOTIC ACT

Every physician registered under the Harrison Narcotic Act must reregister on or before July 1 with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual narcotic tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding \$2,000, or to imprisonment for not exceeding five years, or to both. The Commissioner of Internal Revenue has been so lenient in the past in enforcing the criminal penalties provided by the act

that many physicians seem to have assumed that promptness in reregistration is not material. Year after year they have registered tardily. Since repeated warnings have failed to correct the situation, the commissioner has recently given negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or, as an alternative, accepting criminal prosecution, with resultant publicity and liability to fines of indefinite amounts and possibly imprisonment. This was an act of grace on the part of the commissioner, since he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. If the course that the commissioner has adopted does not produce the desired promptness in registration, he will have no recourse other than criminal prosecution to attain that result. If tardiness in registration results in criminal prosecutions, with incidental publicity and the possibility of fine and imprisonment, physicians will recognize that ample notice has been given them.

### DERMATITIS FROM WRIST WATCH STRAPS

The number of substances that have been alleged to produce dermatitis when placed in contact with the skin of sensitive persons is not small. Within the past few months, two substances that may be present in commonly used materials, lip stick and adhesive plaster, have been added to this list.<sup>1</sup> A recent report<sup>2</sup> describes still another possible source of dermatitis-producing agents, namely, wrist watch straps. An investigation of the material was begun because of a number of complaints received by a certain watch manufacturing concern that the straps used on their watches were causing irritation of the skin. The straps on which complaints were made came from one particular lot and other straps of the same lot produced dermatitis varying in severity from an erythema to severe inflammation when tested on volunteers who worked in the factory. The leather used in the manufacture of the straps was traced to its source and the methods of tanning and dyeing were studied. It was learned that all the straps in the offending lot were dyed by a different process from those previously supplied, because of a request from the watch manufacturer for a strap of "fast black color and sweat proof," and that the dyes used contained amyl black and "Oil Yellow T" (amido azotoluene). Patch tests on volunteer factory workers were then made with samples of the strap at each stage of preparation in order to ascertain the identity of the irritating ingredient. The untreated, tanned leather did not cause dermatitis, nor did the leather after treatment with the "thinner" or with the lacquer. However, severe dermatitis was observed in a number of the subjects receiving applications of the dyed leather. Further patch tests demonstrated that the dye amyl black was inert but that the dermatitis was due entirely to the second dye, amido azotoluene. This study clearly shows that the dye amido azotoluene

<sup>2</sup> Kuyper A. C. and Matull H. A. *J. Biol. Chem.* **103** 51 (Nov.) 1933.

<sup>3</sup> Sherman C. C., Mendel L. B. and Smith A. H. *J. Biol. Chem.* **113** 2-7 (Feb.) 1936.

<sup>4</sup> Sherman C. C., Mendel L. B. and Smith A. H. *J. Biol. Chem.* **113** 265 (Feb.) 1936.

<sup>1</sup> Skin Irritants in Adhesive Plaster. *Current Comment* *J. A. M. A.* **105** 603 (Aug. 24) 1935. Lip Stick Dermatitis *ibid.* **106** 470 (Feb. 8) 1936.

<sup>2</sup> Schwartz L. Dermatitis from Wrist Watch Straps. *Pub. Health Rep.* **51** 423 (April 10) 1936.



should not be used in the preparation of leather for such articles as gloves, shoes, hat bands and wrist watch straps, which are worn next the skin. Such undesirable occurrences as the outbreak of dermatitis just described should afford sufficient reason for urging manufacturers to test adequately for possible dermatitis-producing effects such products as are designed to be applied to or worn next the skin before they are released for use by the public.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ARKANSAS

**Society News**—At a meeting of the Sixth Council District Medical Society in Prescott, recently the speakers were Drs. Grandison D. Royston on "Importance of Symptoms in Pelvic Disorders", Joseph Hoy Sanford, "Obscure Abdominal Pain—Importance of Urinary Tract Investigation", Joseph W. Larimore, "The Ileocecal Segment," and Ernest Sachs, "Early Diagnosis of Brain Tumors." All are of St. Louis.—In an exchange program, recently, members of the Pulaski County Medical Society, all of Little Rock, addressed the Sebastian County Medical Society. Drs. William V. Newman, on "Sulfur Treatment of Arthritis", Robert A. Milliken "Arthrodesis" and Henry F. DeWolf, "Etiology and Pathogenesis of Inflammatory Stricture of the Rectum"—Among others, the Ouachita County Medical Society was addressed at Camden, recently, by Drs. Herbert A. Durham Shreveport, La. on "Fractures of the Femur" and Marion D. Hargrove Shreveport "Auricular Fibrillation"—Dr. Willis C. Campbell Memphis discussed diseases of the knee joint before the Union County Medical Society recently, and Dr. John W. Harper, El Dorado, varicose veins.

### CALIFORNIA

**University News**—Dr. David A. Wood has been promoted to associate professor of pathology at Stanford University School of Medicine, San Francisco, effective September 1 and Drs. Alvin J. Cox Jr. and Carleton Mathewson Jr. to assistant professors of pathology and surgery, respectively.

**Plague-Infected Ground Squirrel**—The director of public health of California has reported that plague infection has been proved in a ground squirrel received at the laboratory March 28. This squirrel was found south of Camarillo in Ventura County, according to *Public Health Reports*.

**Society News**—The San Francisco County Medical Society was addressed May 12, by Drs. William Dock and Emmet Rixford on "Hemolytic Nature of Pernicious Anemia" and "Dumb Bell Tumor of the Spinal Column"—Dr. Joel T. Boone San Diego commander, medical corps U. S. Naval Hospital, San Diego, will address the Hollywood Academy of Medicine, May 21, on the "Reflections of a White House Physician"—The Los Angeles Neurological Society has begun publication of its own bulletin to be issued quarterly.—A symposium on ovarian cysts was presented before the Alameda County Medical Association, April 20 by Drs. Paul P. E. Michael, Thomas Floyd Bell and Edward N. Ewer, Oakland.

### CONNECTICUT

**Dr. Greenway to Retire at Yale**—Dr. James C. Greenway, who has been director of the department of university health at Yale, New Haven, since it was established in 1916 will retire in June and will be succeeded by Dr. Orville F. Rogers who is now assistant director of the department. Dr. Greenway graduated from Yale in 1900 taking his degree in medicine at Columbia University College of Physicians and Surgeons in 1904. Dr. Rogers has been associated with the university department of health since its organization and has been assistant director since 1921. He graduated from Harvard Medical School, Boston.

**Nearly Four Hundred Cases of Scarlet Fever**—Three hundred and ninety cases of scarlet fever have been reported to the New Britain Board of Health in an outbreak having its onset in the latter part of December. The disease ran an unusually mild form, it was stated, resulting in a large number of parents not calling a physician consequently the patients were mingling with others and spreading the disease. A daily inspection was instituted in the schools and all children found with a rash or desquamating were excluded and referred to the board of health. The board of education closed the schools for two weeks, but this action was not recommended by the department of health, it was stated.

**Study of Laws Relating to Automobile Accidents**—A temporary commission has been appointed in Connecticut to study financial responsibility laws as they relate to automobile accidents, according to the *New England Journal of Medicine*. Members of the commission are Michael A. Connor motor vehicle commissioner, John C. Blackall, insurance commissioner, and Superior Court Judge Frank P. McEvoy. Informal meetings have been held with various groups. At a meeting March 9, representative physicians from the eight counties of the state revealed that hospitals in Connecticut are losing money caring for persons injured in automobile accidents who have no means of paying for their treatment. In many of these cases, it was stated, the responsible person carries no liability insurance and the hospital has no means of collecting its costs.

### FLORIDA

**Personal**—Dr. Shaler A. Richardson, Jacksonville, has been appointed a member of the state board of health, succeeding the late Dr. Harry Dash Johnson, Daytona Beach.—Dr. James Mayey Dell, Gainesville, was recently appointed superintendent of the Florida Farm Colony for the feeble-minded to succeed the late Dr. James H. Colson.—Dr. Leonidas M. Anderson, Lake City, completed fifty years in the practice of medicine, March 18. He is a past president of the Florida Medical Association.

### ILLINOIS

**State Medical Meeting in Springfield**—The eighty-sixth annual meeting of the Illinois State Medical Society will be held in Springfield, May 19-21. Physicians presenting the program will include:

Louis K. Kress, Buffalo, Radiation Therapy and Uterine Cancer  
James H. Hutton, Chicago, Low Dosage Irradiation of the Pituitary and Adrenals for Treatment of Non-Nephritic Hypertension  
Thomas Kirkwood, Lawrenceville, The Recrudescence of Malaria  
Leon Unger, Chicago, Allergy of the Eye, Ear, Nose and Throat  
Clarence O. Sappington, The Etiologic Diagnostic and Medicolegal Problems of Occupational Diseases  
G. Howard Gowen, Chicago, Effectiveness of the Oral Administration in the Common Cold.

A symposium on amebiasis will be presented Wednesday morning, speakers will include Mr. Joel I. Connolly, Chicago, Dr. Samuel E. Munson, Springfield, Dr. Bertha Kaplan Spector, Chicago, Dr. Arthur E. Mahle, Wilmette, Dr. Gutwood Chicago, Dr. Andrew R. Miller, Galesburg, and Dr. Eugene F. Traut, Chicago. A symposium on vascular diseases will be offered Thursday morning by Drs. Clarence Elliott Bell, Decatur, Katharine H. Chapman, Sherman, L. Shapiro, George W. Scapham, Ford K. Hick, all of Chicago, and Edward W. Cannady Jr., East St. Louis, Earl R. Crowder, Lynston, Clarence B. Ripley, Galesburg and George H. Woodruff, Joliet. Dr. Ralph A. Kinsella, St. Louis will deliver the oration in medicine Tuesday on "The Career of a Heart," and Dr. George W. Crile, Cleveland will deliver the oration in surgery Wednesday on "Critical Review in 822 Operations on Adrenal Sympathetic System with Special Reference to Essential Hypertension."

### Chicago

**Ricketts Prize Awarded**—The Division of Biological Sciences University of Chicago awarded the Howard Taylor Ricketts Prize of 1936 to John P. Fox for research in pathology and to Dr. H. Campbell Ph.D. for research in bacteriology. The award is announced each year on May 3, the anniversary of the death of Dr. Ricketts bacteriologist of the University of Chicago who died of typhus fever while studying this disease in Mexico City.

**Society News**—Dr. Richard B. Capps among others addressed the Chicago Society of Internal Medicine April 27, on "Observations on Venous Tone and Blood Flow in the Hand. Special Reference to the Reflex Effect of a Noxious Stimulus"—Dr. Hugh H. Young, Baltimore discussed "Urological Problems of General Interest" before the Engle-

wood Branch of the Chicago Medical Society, May 9 Dr Fred W Rankin, Lexington, Ky, discussed "Treatment of Carcinoma of the Lower Bowel" before the Englewood branch, April 7—Dr Newton D Smith, Rochester, Minn, addressed the North Shore Branch of the Chicago Medical Society, April 7, on "Importance of Proctoscopy," and Dr John S Lundy, Rochester, "Various Methods of Anesthesia, with Special Reference to the Newer Anesthetic Agents"

### INDIANA

**Health at Evansville**—Telegraphic reports to the U S Department of Commerce from eighty-six cities with a total population of 37 million for the week ended May 2, indicate that the highest mortality rate (233) appears for Evansville and for the group of cities as a whole, 132 The mortality rate for Evansville for the corresponding period last year was 136 and for the group of cities, 121 The annual rate for eighty-six cities for the eighteen weeks of 1936 was 136 as against a rate of 126 for the corresponding period of the previous year Caution should be used in the interpretation of weekly figures, as they fluctuate widely The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate

**Society News**—Dr Herman L Kretschmer, Chicago, discussed urologic problems in childhood before the Northeastern Indiana Academy of Medicine in Kendallville March 26—Dr George J Garceau, Indianapolis, discussed "Treatment of Fractures" before the Fayette-Franklin County Medical Society in Connersville, April 14—At a meeting of the Henry County Medical Society in Newcastle, April 16, Dr Cyrus J Clark, Indianapolis, spoke on "Valvular Heart Disease and Electrocardiograms"—At a meeting of the Carroll County Medical Society in Delphi, April 16, Dr Max A Bahr, Indianapolis, discussed "Dynamic Factors in Mental Disease"—A symposium on cardiovascular disease was presented before the Vanderburgh County Medical Society in Evansville, April 14—At a meeting of the St Joseph County Medical Society in South Bend, April 1, Dr Harold F Dunlap, Indianapolis, discussed the thyroid—Dr Joseph W Ricketts, Indianapolis, addressed the Fountain-Warren Counties Medical Society in Kingman, April 2, on diseases of the rectum and anus—The Hendricks County Medical Society was addressed in Danville, March 24, by Dr Cyrus J Clark, Indianapolis, on heart diseases—At a meeting of the Marshall County Medical Society in Plymouth, April 1, Dr Clyde M Fish, South Bend, read a paper on rectal diseases—Dr Max A Bahr addressed the Indianapolis Medical Society, April 14, on "Personality vs Environment" and Dr Jackson T Witherspoon presented a paper on "The Female Sex Hormones and Their Clinical Application"—Dr Homer H Wheeler, Indianapolis discussed rectal diseases before the Tippecanoe County Medical Society in Lafayette, April 14

### MARYLAND

**State Medical Meeting and Election**—Dr Arthur M Shipley, Baltimore, was elected president of the Medical and Chirurgical Faculty of Maryland, April 29, at its one hundred and thirty-eighth annual meeting in Baltimore Drs Harvey B Stone, Baltimore William A Gracie, Cumberland, and Robert Lee Hall, Pocomoke City, were elected vice presidents, and Drs Walter D Wise and Joseph Albert Chatard, both of Baltimore, were reelected secretary and treasurer, respectively Speakers included Drs Frederick D Chapplear, Hughesville, retiring president, on "The General Practitioner and the Future" and Howard E Ashburv, Leopold Clarence Cohn, William Neill Jr and Dean D Lewis, on cancer The Trimble lectures were delivered by Drs Allen Graham Cleveland, and Thomas M Rivers, New York their subjects were respectively Cancer of the Breast Prognosis in Surgical Treated Patients and "Diseases of the Central Nervous System Caused by Viruses" The dedication of the John Ruhrah Memorial Room took place Wednesday evening following a buffet supper Dr Ruhrah willed his library of 1,500 volumes to the faculty with a fund The will stated that the interest of the fund was to provide for a book plate and the purchase of books, journals and other items relating to the diseases of children, medical history, biography and bibliography The room, described as a replica of Dr Ruhrah's "workshop," contains his nonmedical books his medical volumes have been placed in the regular files of the faculty The memorial room contains period furniture two etchings and a cartoon owned by Dr Ruhrah The dedicatory address was made by Dr George Washington Mitchell

### MASSACHUSETTS

**New Health Unit**—A new health unit has been organized in Franklin County to serve the towns of Monroe, Rowe, Heath, Charlemont, Irving and Shutesbury The unit, which began to function April 1 will be maintained by federal and state funds until other towns join, it was reported Dr Walter W Lee, North Adams, is in charge

**Medical Pageant**—"The Story of Early Medicine in Massachusetts" was depicted in a pageant presented at the Rutland State Sanatorium by students of Tufts College Medical School, April 30, under the auspices of the Wachusett Medical Improvement Society Mr James Ballard, director of the Boston Medical Library, presented an exhibition of medical books in connection with the pageant

**Personal**—Harry R De Silva, Ph D, Amherst, has resigned as professor of psychology in charge of the psychologic laboratory, Massachusetts State College, to join the staff of the bureau for street traffic research of Harvard University He will conduct research on the constructive aspects of controlling the motor car driver—Dr Albert M Wigglesworth, for eleven years on the staff of the Veterans' Hospital, Rutland, has been transferred to the Veterans' Hospital, Oteen, N C He was presented with a framed testimonial by patients at the Rutland institution—Dr Edwin M Mahoney was elected secretary of the newly appointed health board of Holyoke, other members are Arthur Hebert, chairman, and Dr Joseph W Wonsik

**Awards for Research in Psychiatry**—Announcement of the winners of annual awards for the best papers embodying research in psychiatry completed during the year 1935 was made at the annual meeting of the New England Society of Psychiatry, April 22 Dr Benjamin Cohen of the staff of Grafton State Hospital received an award for his paper "Repression and Communicability in Catatonic Stupor", Tamara Dembo, Ph D, and Eugenia Hanfmann, Ph D, Worcester State Hospital, for their paper entitled "The Patient's Psychological Situation on Admission to a Mental Hospital," and Drs Benjamin Simon, Worcester State Hospital, and Philip Solomon, Boston Psychopathic Hospital, for their paper on "Multiple Sclerosis" Dr Abraham Myerson, Boston, was the principal speaker and his subject was "The Neuroses" Dr Winfred Overholser, commissioner of Massachusetts Department of Mental Diseases, Boston, was elected president for the ensuing year

### MICHIGAN

**Annual Clinic**—The Ingham County Medical Society conducted its annual clinic in the Olds Hotel, Lansing, April 23 Guest speakers included

Dr Louis G Herrmann Cincinnati New Methods of Treatment of Endarteritis and Other Vascular Diseases of the Extremities  
Dr James G Carr Chicago Prognosis in Heart Disease  
Dr Loyal Davis Chicago Treatment of Wounds Involving the Peripheral Nerves  
Dr Russell L Haden Cleveland Blood Dyscrasias

At the dinner, Dr Clay R Murray, New York, discussed "Ambulatory Treatment of Fractures"

**Society News**—At a joint meeting of the Wayne County Medical Society and the Detroit Society of Neurology and Psychiatry, April 6 speakers were Drs Thomas J Heldt and David R Clark, Detroit, on sidestepping responsibilities via drugs and alcohol, respectively A symposium on traumatic surgery was presented before the county medical society, April 27, by Drs Albert S Crawford Arche C Hall and Archibald D McAlpine Dr John A Toomey, Cleveland, discussed "Epidemic Meningitis Its Differential Diagnosis from Other Forms of Meningeal Irritations" before the Wayne County Medical Society, April 20—At a meeting of the Sanilac County Medical Society in Crosswell, April 7, Dr Clark D Brooks, Detroit, spoke on "Surgical Disease of the Biliary Tract"

**Personal**—Dr Raymond B Alien, newly appointed dean of Wayne University College of Medicine, Detroit, will be guest of honor at a dinner given by the Wayne County Medical Society, May 18—Dr Theron S Langford, Ann Arbor, president of the Washtenaw-Livingston Boy Scout council for the past three years, was presented with an award for scout leadership, at a dinner in Ann Arbor recently—Dr William M Tappan has been made health officer of Holland, succeeding Dr William Westrate—Dr Walter E Mercer, for four years health officer of Webberville, has been placed in charge of the bureau of child health of the Lansing department of health—Dr Henry G Berry Mount Clemens, has recently completed fifty years in the practice of medicine—Dr Charles P Drury, health officer of Marquette, was guest of honor at

a farewell dinner given in Iron Mountain recently by the Dickinson-Iron County Medical Society. Dr Drury took over his duties as health officer, April 1, succeeding the late Dr Frederick McD Harkin. He has been secretary of the county medical society for eight years. Dr Joseph A Crowell, president of the medical society, was toastmaster.—Georges Miquelle, director of the Wayne County Medical Society Orchestra, was presented with an honorary membership in the society, March 30. The occasion was the first annual concert of the orchestra and the society's glee club.

### MINNESOTA

**Society News**—The eleventh annual dinner of the Sanatorium Commission and the fifth annual joint meeting of the Wabasha and Winona county medical societies was held at Buena Vista Sanatorium, Wabasha, March 16. Speakers were Drs William W Will, Bertha, president state medical association on problems of the state association. Mr R R Rosell St Paul, substituting for Dr Edward A Meyerding, St Paul 'Social Security Programs Pending in Minnesota'. Dr Charles H Watkins Rochester, 'Practical Treatment of Anemias' and Dr Frank J Heck, Rochester, 'Infectious Mononucleosis'. At a meeting of the Hennepin County Medical Society in Minneapolis, April 15, speakers were Drs Gilbert J Thomas on 'Nonspecific Infections of the Prostate Gland' and Virgil J Schwartz, 'Dyspnea and Dysphagia of Unusual Origin'. At the meeting, April 22, Drs Ernest L Meland and Rood Taylor discussed 'Transurethral Prostatic Resection' and 'Infant Feeding' respectively.—The Minnesota Academy of Medicine was addressed in Minneapolis, April 8, by Henry E Hartig, Ph.D., associate professor of electrical engineering University of Minnesota, and Dr Horace Newhart on 'Practical Applications of Acoustics in Medicine'.—Dr Ernst A Pohle Madison, Wis., addressed the Minnesota Radiological Society in St Paul, March 28, on 'Radiological Treatment of Leukemia and Allied Disorders'.

### MISSISSIPPI

**Society News**—At a recent meeting of the Central Medical Society in Jackson speakers were Drs Leon S Lippincott Vicksburg, on 'Carcinoma of the Cervix Uteri'. Harley R Shands Jackson 'Chronic Primary Tuberculosis of the Spleen,' and William H Anderson Booneville 'Anesthesia'.

**Graduate Course in Obstetrics**—Dr Maxwell E Lapham, state department of health, Jackson is conducting a graduate course on obstetrics in the Gulfcoast section, under the auspices of the Mississippi State Medical Association. The counties of Jones, Forrest, Perry, Lamar, Pearl River, Harrison, Stone, Hancock, and Jackson are included in the circuit. One hour is devoted to lectures and one to clinical demonstrations and round table discussions. The first lecture was given in Laurel, March 30.

### NEBRASKA

**State Medical Meeting and Election**—Dr Roy W Fouts, Omaha, was chosen president elect of the Nebraska Medical Association at its sixty-eighth annual meeting in Lincoln April 7-9 and Dr George W Covey, Lincoln was installed as president. The next annual meeting will be held in Omaha in May 1937. Guest speakers were

- Dr James R McCord Atlanta Ga. 'Maternal Mortality'
- Dr Archibald L Hoyne Chicago 'Should Every Doctor Be Equipped to Do Spinal Fluid Examinations? Treatment of Meningococcal Meningitis Without Intraspinal Therapy'
- Dr Sumner L S Koch Chicago 'Injuries of the Hand Osteomyelitis of the Bones of the Hand'
- Dr Max Cutler Chicago 'Incidence of Cancer—Is It Increasing or Decreasing?'
- Dr Fred M Smith Iowa City 'Prognosis and Certain Aspects of the Treatment of Coronary Artery Disease. Is the Increasing Death Rate from Heart Disease Apparent or Real?'
- Dr William T Coughlin St. Louis 'What Qualifies a Doctor to Do Major Surgery? Surgical Treatment of Gallbladder Disease'
- Dr Frank D Dickson Kansas City 'No Importance of Immediate Splinting of Fractures'
- Dr John P Koehler Milwaukee 'Prevention and Treatment of Scarlet Fever. Family Physician's Place in a Public Health Program'
- Dr Ralph M Carter Green Bay Wis. 'New Activities of the State Medical Society of Wisconsin'
- Dr Philip W Brown Rochester Minn. 'Is There Such a Thing as Nervous Indigestion? Clinical Considerations of Cholecystitis'

In a symposium on fractures, speakers were Drs Dickson Carter, Myron O Henry, Minneapolis and John R Nilsson Omaha. The cancer committee of the state association conducted a cancer hour with the following speakers: Drs Cutler John Marshall Neely, Lincoln; Louis E Moon Omaha and Alfred P Syndhorst Grand Island. Dr William W Bauer Chicago director Bureau of Health and Public Instruc-

tion American Medical Association, was the speaker at the annual meeting of the Woman's Auxiliary, on 'Health Education versus Health Racketeering'.

### NEW YORK

**University News**—Dr Bret Ratner addressed the bacteriology and hygiene departments of Teachers College, Columbia University, April 22 on 'The Nature and Basic Mechanism of Allergy'.

**State Medical Election**—Dr Charles H Goodrich, Brooklyn was chosen president-elect of the Medical Society of the State of New York at the recent annual meeting, and Dr Floyd S Winslow Rochester, was installed as president. Vice presidents are Drs Guy S Carpenter, Waverly, and Moses A Stivers, Middletown, and Dr Peter Irving, New York, is secretary. The next annual meeting will be held in Rochester. The President's Medal a newly established honor of the society, was presented to the retiring president, Dr Frederic E Sondern.

**Society News**—Dr Henry D Niles, New York, addressed the St Lawrence County Medical Society at Ogdensburg and the Jefferson County Medical Society Watertown, April 16 on 'Diagnosis and Treatment of Common Skin Diseases'.—Dr James K Quigley, Rochester, addressed the Chemung County Medical Society Elmira April 8 on practical obstetrics. Dr Russell L Cecil New York, spoke on pneumonia, April 15.—The annual joint meeting of the Onondaga Medical Society and the Onondaga County Bar Association was held in Syracuse May 2, with Dr Floyd S Winslow Rochester as the guest speaker.—Drs Walter A Reynolds and Emanuel Martin Freund addressed the Medical Society of Albany County, April 22, on 'Hypertension in Children and Young Adults' and 'Furunculosis of the External Auditory Canal' respectively.—Dr Howard Lilienthal discussed 'Intrathoracic Suppuration' before the Medical Society of the County of Nassau, April 28.

### New York City

**Eighth Harvey Lecture**—Dr Ivan deBurgh Dalry professor of physiology University of Edinburgh, Scotland will deliver the eighth Harvey lecture at the New York Academy of Medicine May 21. His subject will be 'The Physiology of the Bronchial Vascular System'.

**Hospital Department to License Private Institutions**—The Municipal Assembly unanimously adopted and the mayor approved March 20 a measure authorizing the department of hospitals to license all private proprietary hospitals, sanatoriums, nursing homes, convalescent homes, homes for the aged or for chronic patients, or other private proprietary institutions for medical nursing or custodial care. Licenses are to be issued for one year and the institutions are subject to inspection by the hospital department.

**Dr Ladd Named Dean of Cornell**—Dr William S Ladd, associate and acting dean of Cornell University Medical College, has been appointed dean. He has also been named professor of medicine. Dr Ladd graduated from Columbia University College of Physicians and Surgeons in 1915. He resigned from the Columbia faculty in 1931 to become assistant professor of clinical medicine and associate dean at Cornell.

**Three Million Dollars for Cancer Hospital**—The General Education Board has given \$3,000,000 to the Memorial Hospital for the Treatment of Cancer and Allied Diseases to erect a new twelve story hospital building adjacent to the Rockefeller Institute according to the New York Times. When this structure is completed, it will house the entire facilities of the Memorial Hospital. With a capacity of 200 beds as compared with the present capacity of 110 beds the new building will occupy the block bounded by East Sixty-Seventh and Sixty-Eighth streets, York and First avenues near the East River. It is planned to start construction this fall. Memorial Hospital, founded in 1884 is said to be the oldest special cancer hospital in America, it has been affiliated with Cornell University Medical College since 1913. Last year it accepted 3,200 patients for treatment. It has a daily average of 325 patients coming to the hospital and its nine clinics and x-ray and radium departments. Nearly 96,000 outpatient visits were recorded last year and 11,000 active cases are now being cared for by the hospital.

**Society News**—Speakers before the Richmond County Medical Society Staten Island in March were Drs Joseph H Diamond on treatment of asthma, Herbert A J Cochrane, paleopathology, and Enrico C Soldini 'Subacute Bacterial Endocarditis'.—Dr Eugene L Opie was recently elected president of the Harvey Society. Dr Philip Smith vice president.

Dr Thomas N Rivers, treasurer, reelected, and Dr McKeen Cattell, secretary—The name of the *Health Examiner* published by the New York Academy of Medicine, has been changed to *Preventive Medicine*—At the stated meeting of the New York Academy of Medicine, April 2, a symposium on diseases amenable to splenectomy was presented by Drs Allen O Whipple, who spoke on "The Advantages of the Combined Clinic in Middle Ground Disease", Daniel Brown and Robert H E Elliott Jr, "Idiopathic Thrombocytopenic Purpura", Louis M Rousselot, "The Role of Congestion (Portal Hypertension) in the Banti Syndrome and the Response to Splenectomy," and William P Thompson, "Hemolytic Jaundice—Its Recognition, Treatment and Behavior" Dr Gregory Schwartzman gave the twentieth Friday afternoon lecture, April 3, on recent advances in treatment of bacterial infections—Dr George B Dorff, Brooklyn, addressed the Medical Society of the County of Queens, April 17, on "Hormone Treatment of the Imperfectly Developed Testicle"

### NORTH DAKOTA

**State Medical Meeting at Jamestown**—The forty-ninth annual meeting of the North Dakota State Medical Association will be held at Jamestown, May 17-19, at the Gladstone Hotel, and under the presidency of Dr Archibald D McCannel, Minot. At the annual banquet Monday evening Dr Jay A Myers, Minneapolis, among others, will discuss "Modern Methods in Tuberculosis Control" Other speakers on the program include the following physicians:

Henning M Berg Bismarck Radiographic Studies of Fractures of the Extremities  
Elmer G Wakefield Rochester Physiology of the Colon with Medical Aspects of Carcinoma  
Charles W Mayo Rochester Carcinoma of the Colon  
Frederic E B Foley St Paul Surgical Treatment of Hydro-nephrosis  
Henry E Michelson Minneapolis Common Skin Diseases  
George E Hudson Minneapolis Endocrine Therapy in Gynecology  
Frederick A Willis Rochester Prognosis in Coronary Thrombosis  
Frederick C Rodda Minneapolis Artificial Feeding in the New Born  
Donald McCarthy Minneapolis Coronary Artery Diseases  
Ralph E Weible Fargo Diverticulitis of the Colon

### OHIO

**Hanna Lecture**—Dr Ivan de Burgh Daly, professor of physiology, University of Edinburgh Scotland, will deliver the Hanna Lecture of the Academy of Medicine of Cleveland, May 25, on "Intrinsic Mechanisms of the Lung"

**Personal**—Dr John Srail Jr, assistant superintendent of the Clark County Sanatorium, Springfield, has been made superintendent to succeed Dr Jay D Thomas, who resigned—Dr Aaron H Smith has resigned as superintendent of Pleasant View Sanatorium, Amherst—Dr Howard E M Boocks Logan has been appointed health officer of Logan County and Dr Henry C Lindersmith, Sherwood, of Defiance County—Dr Thomas F Humphrey has resigned as resident physician at the Ohio Soldiers and Sailors' Orphans' Home Hospital, Xenia Dr Ernest W Ekermeier, assistant resident, will succeed Dr Humphrey—Dr Colston L Dine, Minster, entertained the Auglaize County Medical Society at dinner, April 1, celebrating the fiftieth anniversary of his medical practice—Dr Oliver T Sproull, West Union, observed the fiftieth anniversary of his graduation from the College of Physicians and Surgeons of Baltimore, March 22

### OKLAHOMA

**State Medical Election**—Dr Samuel A McKeel Ada, was chosen president of the Oklahoma State Medical Association at its recent annual meeting in Enid, and Dr George R Osborn Tulsa was installed as president The next annual meeting will be held in Tulsa

**Changes in the Faculty**—The department of epidemiology and preventive medicine of the University of Oklahoma School of Medicine, Oklahoma City, has been changed to the department of hygiene and public health with Dr Onis G Hazel as head according to the state medical journal Dr Willis K West was named acting head of the department of orthopedic surgery during the leave of absence of Dr Samuel R Cunningham and Dr Lee K Emenhiser acting head of the department of anatomy has been granted a leave of absence to continue graduate study Dr Lawrence C McHenry has resigned as assistant professor of otology, rhinology and laryngology These changes were approved at a meeting of the board of regents of the University April 1

### PENNSYLVANIA

**Personal**—Dr Robert R Hays, senior assistant physician at Pennhurst State School, has resigned to become assistant superintendent of the Blair County Home and Hospital, Hollidaysburg—Dr John B Carrell, Hatboro, recently celebrated the sixtieth anniversary of his graduation from Jefferson Medical College, Philadelphia

### Philadelphia

**Meeting of Obstetricians**—The Obstetrical Society of Philadelphia was host to the New York Obstetrical Society, the Pittsburgh Obstetrical and Gynecological Society, the Obstetrical Society of Boston and the Washington Gynecological Society, April 2 Clinics were conducted at various hospitals during the day, followed by a dinner at the University Club in the evening Dr William A Jewett, Brooklyn, presided and Dr Robert L De Normandie, Boston, discussed maternal mortality

**Medical Exhibits in Community Fund Exhibition**—Preceding the annual campaign for funds by the Community Fund and the Federation of Jewish Charities, an exhibition showing the work of the agencies concerned was held in the municipal auditorium, March 16-22 Among the exhibits was an operating room in which surgeons performed actual operations four times a day, newspapers reported Other exhibits included a medical laboratory and a pharmacy, occupational therapy and the work of the visiting nurse

**Personal**—Dr Leroy M A Maeder has resigned as medical director of the Pennsylvania Mental Hygiene Committee to devote his full time to private practice—Dr and Mrs Edgar M Hewish celebrated their fiftieth wedding anniversary, April 15 Dr Hewish has also been practicing medicine for fifty years—Dr Charles J Hatfield, director, Henry Phipps Institute, University of Pennsylvania has been appointed official representative of the National Tuberculosis Association for the conference of the International Union Against Tuberculosis in Lisbon, Portugal, September 7-10

### Pittsburgh

**Mellon Lecture**—Dr Frank C Mann, director, division of experimental surgery and pathology, Mayo Clinic Rochester, Minn, delivered the nineteenth Mellon Lecture under the auspices of the Society for Biological Research University of Pittsburgh School of Medicine, April 30 His subject was "The Role of the Liver as the Commissariat of the Body"

**Society News**—Drs Robert M Entwisle and deWayne G Richey addressed the Pittsburgh Academy of Medicine, April 14, on "Lympho-Epithelioma of the Tonsil" and "Indications for Splenectomy" respectively—Dr John W Stinson spoke on "A New Procedure in Herniorrhaphy" at a meeting of the Pittsburgh Surgical Society, April 17, Dr John H Alexander reported a case of tuberculous granuloma of the cecum and Dr Gustav F Berg presented a motion picture on open reduction in fractures—At the annual meeting of the Allegheny County Medical Society in Pittsburgh, April 21, Drs Marlin W Heilman, Tarentum, Pa, presented "A Clinical Laboratory Study of Heat Diseases", Robert L Anderson, "Prostatic Resection", Walter C Alvarez, Rochester, Minn, "Helpful Hints in the Diagnosis of Puzzling Types of Indigestion," and Temple Fay, Philadelphia, "Recent Observations on the Mechanism of Headache" The evening session was addressed by Dr Fay on "Why Do We Laugh?" and Dr Alvarez "How to Fit a Diet to a Dyspeptic" Dr Catharine MacFarlane Philadelphia was guest speaker at a meeting of the society, in March, on "Dysfunctional Uterine Bleeding"

### RHODE ISLAND

**Personal**—Dr James J Flanagan has been appointed medical examiner for Cranston and Johnston, succeeding Dr Daniel S Latham The latter held the position nearly thirty years He has served in both houses of the state legislature and is at present public health superintendent of Cranston

**Society News**—Dr Kenneth K Kinney, Williamantic, addressed the quarterly meeting of the Washington County Medical Society, Westerly, April 8, on bone tumors—Drs Roger I Lee, Boston and Albert H Miller, Providence, addressed the Providence Medical Association, April 6, their subjects were Coronary Thrombosis and "Diaphragmatic Respiration Recorded by a Synchronous Pneumograph respectively

## WISCONSIN

**Society News**—Dr Willard O Thompson Chicago, addressed the Racine County Medical Society, March 19, on goiter—Dr John S Coulter, Chicago, discussed "Physical Therapy in Arthritis" at a meeting of the Outagamie County Medical Society, Appleton, March 31—Dr Arnold S Jackson, Madison, chairman of the committee on goiter, State Medical Society of Wisconsin, addressed the Rock County Medical Society, Janesville March 24, and the Fond du Lac County Medical Society, March 19, on 'Prevention of Endemic Goiter in Wisconsin'—At a meeting of the Eau Claire-Dunn-Pepin County Medical Society, March 30, speakers were Drs Ralph M Waters, Madison on "Inhalation Anesthesia", Arnold S Jackson, Madison, 'Prevention of Goiter, and Gjer-mund Hoyme, Eau Claire "Ten Minutes of Medical News"—Dr Erwin R Schmidt, Madison, addressed the Trempealeau-Jackson-Buffalo Counties Medical Society in Arcadia, March 19, on "Diseases of the Liver and Gallbladder"—Dr Samuel F Haines, Rochester, Minn, was the guest speaker at a meeting of the Polk County Medical Society, Osceola March 19, on diseases of the thyroid

## PUERTO RICO

**Lectures at School of Tropical Medicine**—Mr Perry Burgess, president of the Leonard Wood Memorial Foundation, recently lectured at the School of Tropical Medicine of the University of Puerto Rico, which is under the auspices of Columbia University. Mr Burgess described the work of the foundation toward the eradication of leprosy. Dr William Thornwall Davis Washington, D C, spoke at the school on 'The Orthoptic Treatment of Squint' Edmund V Cowdry, PhD, professor of cytology, Washington University St Louis, spoke recently on "Nuclear Changes Caused by Viruses"

## GENERAL

**Traffic Safety Program**—The National Congress of Parents and Teachers during March launched a program of traffic safety education to reduce highway accidents. Emphasis will be placed on sponsorship of standard schoolboy safety patrols, proper marking for streets approaching schools, strict observance of laws governing minimum age for young automobile drivers, instruction in automobile driving for high school students, cooperation with police in securing maximum protection at school crossings, support of the drivers license law and improvement of school bus facilities. Miss Marian Telford, national chairman of safety for the congress, who is the consultant on child safety and director of field activities for the National Safety Council, is directing the work.

**Fund for Medical Aid**—A trust fund will be set up under the will of the late Addison H Gibson, Pittsburgh, to procure medical aid for impoverished ill persons and to help deserving young men obtain a college education, according to the New York Times. One half of the estate valued at about \$2,300,000, will be used to procure medical aid or hospital facilities for poor and needy persons although the trustees are also permitted to donate directly to hospitals or other institutions furnishing such aid. The will stipulates that the other half will be used for loans to worthy young men desiring a college education. A low rate of interest is to be charged in these instances the will states although this too depends on the discretion of the trustees.

**Fund for Grants in Medical Sciences**—The National Research Council announces that a limited fund is available for grants in medical sciences. Applications must be submitted to the secretary, division of medical sciences of the council 2101 Constitution Avenue Washington, D C on or before October 1 to be considered at the November meeting. At the April meeting of the committee the following grants were made:

Peter Heinbecker assistant professor of surgery Washington University School of Medicine the mechanism of the altered response of smooth musculature to exogenous epinephrine.

Albert P Krueger associate professor of bacteriology University of California Medical School Berkeley studies on the nature of bacteriophage.

Charles Phillip Miller associate professor of medicine University of Chicago the immunologic properties and toxicity of some chemically isolated fractions from meningococcus.

Carl C Speidel PhD professor of anatomy University of Virginia School of Medicine Charlottesville, observations on nerve and striated muscle fibers subjected to centrifuging at high speeds.

Ernst A Spiegel professor of experimental and applied neurology Temple University School of Medicine the function of the cortical labyrinth centers and their relation to the uncortex.

Since the funds which have been placed at the disposal of the National Research Council during the past few years for the making of research grants have been discontinued there will be no further meetings of the committee on grants in aid.

**Medical Bills in Congress—Changes in Status** H Res 460 has passed the House authorizing the Speaker to appoint a committee of five members to investigate the activities of the departments, bureaus, boards, commissions, independent agencies, and all other agencies of the executive branch of the government with a view to determining whether any such agencies should be coordinated or abolished. The House and Senate have adopted the report of the conferees on H R 11035 the war department appropriation bill, which report authorizes the reestablishment of medical units in the Reserve Officers Training Corps. H R 12527, the navy department appropriation bill, has passed the Senate. A provision in the bill authorizing an appropriation to start construction of a naval medical center in Washington was stricken from the bill by the Senate. H R 12556 has passed the House, proposing to create a Treasury Agency Service. The bill does not propose to transfer to the newly created Treasury Agency Service the functions now exercised by the Bureau of Narcotics as did the bill of which H R 12556 is a redraft but authorizes the Secretary of the Treasury to coordinate the functions conferred on the new service with the functions of investigation, detection or prevention of the violations of the narcotic laws conferred or imposed by law on the Bureau of Narcotics.

**Society News**—At the annual meeting of the American Association of Pathologists and Bacteriologists in Boston, April 9 Dr Nathan C Foot, New York, was made president and Dr Earl B McKinley, Washington D C vice president. The next annual meeting will be in Chicago—Dr Frederic T Lewis, Boston, was elected president of the American Association of Anatomists at the annual convention at Duke University, Durham N C April 11. The 1937 convention will be at the University of Toronto, Canada, April 25-27—The National Conference on Visual Education and Film Exhibition, formerly known as the DeVry Summer School of Visual Education will be held at the Francis W Parker School, Chicago June 22-25—The American Association for the Study of Goiter will hold its annual meeting in Chicago June 8-10, with headquarters at the Drake Hotel, under the presidency of Dr Julius R Yung, Terre Haute Ind. Clinics will be conducted at the morning sessions and papers will be presented by the following physicians: James B Collip, Montreal, Willard Owen Thompson, Chicago, Jacob Lerman, Boston, William T Salter, Boston, John de J Pemberton, Rochester, Minn, Saul Hertz, Boston, James H Means Boston, Frederick A Coller, Ann Arbor, Mich, James H Hutton, Chicago, Nathan A Womack, St Louis, Warren H Cole, St Louis, Henry S Plummer, Rochester, Minn, James A Lehman, Philadelphia, Arthur E Hertzler, Halstead, Kan, Thomas C Davidson, Atlanta, Ga, David Henry Poer, Atlanta, Charles H Arnold, Lincoln, Neb, Frank H Lahey, Boston, Frederick S Wetherell, Syracuse, N Y, Alfred H Noehren, Buffalo, George E Beilby, Albany, N Y, John C McCintock, Arlington Heights Ill, D Roy McCullagh, Ph D, Cleveland, and H J Perkin, Boston.

## CANADA

**Personal**—Dr James S Baxter, assistant professor of anatomy at McGill University Faculty of Medicine since 1934 will leave for England soon where he will join the staff of the University of Cambridge, Science reports.

**Dr Fleming Named Dean at McGill**—Dr Albert Grant Fleming professor of public health and preventive medicine and director of the department, has been appointed dean of McGill University Faculty of Medicine Montreal to succeed Dr Charles F Martin, who retires August 31, having reached the age of 67 years. J C Simpson LL.D secretary of the faculty of medicine and chairman of the committee on physical education will fill the newly established position of associate dean. Dr Fleming who is 48 years of age, graduated from the University of Toronto Faculty of Medicine in 1907. Last year he was appointed secretary to the health insurance committee of the British Columbia College of Physicians and Surgeons.

**Society News**—The Health League of Canada has recently been formed to replace the Canadian Social Hygiene Council and will include other aspects of public health in its program. Dr Gordon A Bates Toronto for many years associated with the original organization is director—Dr Alexander Randall Philadelphia addressed the Toronto Academy of Medicine March 3 on Obstructive Uropathies—Dr Karl M Wilson Rochester N Y addressed the Montreal Medico Chirurgical Society recently on maternal mortality—Dr Walter C Alvarez Rochester Minn addressed the medical profession of Winnipeg February 5 on "Physiology of the Gastro Intestinal



Tract"—The annual meeting of the Canadian Public Health Association will be in Vancouver, June 22-26, in conjunction with the Western Branch of the American Public Health Association and the Canadian Tuberculosis Association

### FOREIGN

**International Orthopedic Meeting**—The congress of the International Society of Orthopedic Surgery will be held in Bologna, Italy, September 21-25. The last day will be spent in Rome, where orthopedic clinics will be arranged at a new clinic.

**Dedication of Eastman Dental Dispensary**—The Eastman Dental Clinic of Stockholm, Sweden, given to the city by the late George Eastman, Rochester, N. Y., was to be dedicated April 25 in the presence of King Gustaf. This is the fourth of five European dental clinics for which Mr. Eastman gave \$1,000,000 each, the first having been opened in London in 1931. The second was opened in Rome in 1933, the third in Brussels in 1935. It is expected that the last, which is to be in Paris, will be completed early in 1937. The cornerstone was laid in July 1935.

**Congress for Experimental Cytology**—The fourth International Congress for Experimental Cytology will be held in Copenhagen, August 10-15. Subjects for the sessions will be experimental morphology, electrophysiology of the cell, experimental cell pathology and biology of irradiation, histochemical problems and cell metabolism and physical chemistry of the cell. Those desiring to present papers and demonstrations should submit the titles together with brief summaries, before June 1. They are further requested to give exact information on the nature of the material to be demonstrated and the size of lantern films and cinema films. Those who plan to attend should notify Dr. Harald J. Okkels, secretary, Institute for Pathological Anatomy, 11 Frederik 51 Vej, Copenhagen, Denmark.

**Plans Approved for Jerusalem Medical Center**—Plans with the Hebrew University in Jerusalem were recently approved by the building committee and it is expected that for the Rothschild-Hadassah-University Hospital to be affiliated construction will begin about July, according to Dr. Jacob J. Golub, New York, consultant to the committee. The new institution will be erected on a 25 acre plot on Mount Scopus overlooking the city. There will be three units, each three stories high: a 260 bed hospital, a graduate medical school and a nurses' training school. The teaching center will be named in honor of Dr. Nathan O. Ratnoff, New York, chairman of the American Jewish Physicians' Committee. Less than \$200,000 is needed to complete the building fund, it was announced recently by the fund committee of Hadassah, the Women's Zionist Organization of America, which is sponsoring the medical center.

**Society News**—The eleventh congress of the International Society of the History of Medicine will be held in September 1938 at Athens, Istanbul, Sophia and Zagreb. Subjects for discussion will be religious origins of hippocratic medicine, the hippocratic idea in modern medicine and medical folklore. At the tenth congress in Madrid in 1935 Dr. Gomoiu, Bucharest was elected president and Dr. Guart, Lyons, France, secretary.—Dr. Rudolph Matas, New Orleans, was chosen president of the International Society of Surgery at its meeting in Cairo, Egypt, Dec. 28, 1935. Dr. John Shelton Horsley, Richmond, Va. attended the meeting. The society will meet in Vienna in 1938.—The eleventh International Congress of Psychology will be held in Madrid, September 6-12.—The twenty-second annual conference of the National Association for the Prevention of Tuberculosis will be held in London, July 16-18.—An International Congress on Hepatic Insufficiency will be held at Vichy, France, Sept. 16-18, 1937, under the chairmanship of Prof. Maurice Loeper, Paris. The International Congress on Gastro-Enterology will be held in Paris, Sept. 13-15, 1937.—An International Sports Physicians' Congress will be held by the International Sports Physicians Association in Berlin, July 27-August 1, just preceding the Olympic Games.—The first International Congress of Sanatoriums and Private Nursing Homes will be held in Budapest in September.

### CORRECTION

**Marriage**—THE JOURNAL April 25, page 1510 reported the marriage of Dr. William Rudolph Hamsa of Iowa City to Miss Doris Sanborn of Scotia, Neb. recently. Instead the notice should have read Rudolph Alfred Hamsa, DDS, of Scotia, Neb.

## Government Services

### Office of Public Health Education Established

The U. S. Public Health Service announces the establishment of the office of public health education, under Asst. Surg. Gen. Lewis R. Thompson, chief of the division of scientific research. The purpose is to carry out experimental studies in health education. Its initial activities will embrace the training and instruction of young commissioned officers of the service, special instruction for educators, health officers and sanitarians from state health departments and from health departments of foreign countries and for other eligible persons, the making of studies of educational methods employed in various health agencies and in other fields of education, with a view to adapting the methods to its own purposes, and to developing new and improved methods, the making of experimental studies in mass adult education, through the use of the radio for the purpose of evaluating various methods of radio education, the filing of permanent records of available material to be a repository of authoritative information in the field of health education, preparation of a bulletin of current health information, primarily for the personnel of the service. The first copy of this bulletin, entitled "The Health Officer," has made its appearance with the May issue.

### Annual Report on Traffic in Narcotics

According to the annual report of the commissioner of the bureau of narcotics, U. S. Treasury Department, \$1,244,899 was appropriated to enforce federal narcotic drugs laws for the fiscal year ended June 30, 1935. During the year a uniform narcotic law, drafted and approved by the National Conference of Commissioners on Uniform State Laws at its annual conference in October 1932, was enacted in Kentucky, Louisiana, Rhode Island, South Carolina and Virginia. Florida, Nevada, New Jersey and New York had previously adopted this legislation. Since the report was written, twenty more states have adopted the law in its original or a modified form.

The annual report gives accounts of ninety-five seizures. The total quantity seized showed an increase of 51 per cent over the total for 1933. There is at present no lawful manufacture of prepared opium in the United States. The total quantity of morphine seized during the year was about 66 per cent less than that seized during the previous corresponding period. The illicit traffic in codeine has increased to a scale which demands notice. Up to the present, the report states, this traffic has been mostly supplied from Canada and is heaviest in the area surrounding Buffalo. Since Canadian authorities discontinued the indiscriminate sale of this drug at Fort Erie, North, Ontario, more drug addicts than usual have applied to the Buffalo City Hospital for treatment. Illicit traffickers rely increasingly on the Far East for supplies not only of prepared opium, but also of morphine, heroin, and even cocaine. The increasing use of the Central American countries and the West Indies as bases for smuggling to the United States has caused no little concern. All the Central American countries except Guatemala and Panama are so used, and in West Indian Islands, West End and Bimini are generally used. There were 158 charges of violation placed against vessels. Of fifty defendants presented for prosecution thirty-three were convicted and twelve acquitted. There were 4,742 persons reported for criminal violations, of these 1,833 were registered. Thirty-seven separate chemical analyses of morphine seizures, 110 analyses of heroin seizures and nineteen analyses of cocaine seizures were made to determine the percentage of purity. Physicians whose narcotic permits were revoked numbered nineteen for conviction, and nine for addiction. During the week ended Dec. 9, 1934 the federal bureau of narcotics conducted a national drive against violators of the narcotic drug laws, resulting in the arrest of 441 persons. The drug seized in most cases was heroin (diacetylmorphine), generally in highly adulterated form. By March 15, 1935, some 211 of these persons had been convicted and sentenced to imprisonment by either state or federal courts. To reduce the use of narcotics in race horses, state racing commissions cooperated by having special stables erected at race tracks for conducting tests by veterinarians and chemists to determine whether horses were drugged. Many of the states require at least two tests daily of horses selected by the stewards. During the calendar year 1934, a total of twenty-two thefts of order forms was reported and the unaccounted losses reported totaled 154. Growing cannabis was discovered in and around Denver, Colo., Atlanta, Ga., Jacksonville, Fla., Tulsa, Okla. and a small plot was discovered and destroyed within the city limits of Brooklyn, N. Y. In the San Joaquin Valley, California, alone about 4,000 pounds of marihuana was destroyed.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 1, 1936

#### The Care of the War Blinded

St Dunstan's Hostel was founded for war-blinded men in 1915 by the late Sir Arthur Pearson and has had under care nearly 2,000 cases, while new cases still continue to come in. The average age of the men is a little over 45. It has been calculated that in twenty years there will still be 1,200 war blinded and that in forty years more than 400 may still be left. During the last few years there have been nearly 100 new cases—men who have only recently gone blind as the result of injuries in the war. Many have been due to mustard gas, and in the last two years fifteen such cases have been admitted. On the other hand, lacrimatory gas, though irritating to the eyes when discharged, does not seem to cause any permanent disability. Chlorine gas too, while dangerous to the lungs, does not seem to have been injurious to the eyes. Sir Arthur Pearson's main idea was to establish a hostel where blinded soldiers could be taught how to resume their places in civil life and, as far as possible, overcome their handicap. His enterprise has been a great success, largely because of the work of the welfare department which looks after practically every business, family and domestic need of each man when he is settled in his own home again. It supplies the craftsman with raw material tools and apparatus and skilled instruction. Through a special sales department it sells the work he produces. It also watches over his health and that of his family.

An institution which is performing a valuable service for the blind in general is the National Library for the Blind, the reconstructed premises of which have been opened by the minister of health. The library provides for 11,000 blind readers, of whom about 8,000 receive their books by mail. The number of volumes circulated averages 1,500 a day. The reconstructed premises will house 250,000 volumes. The library has at present 186,000 volumes, representing 15,000 complete books.

#### International Congress of Physical Medicine

The government has invited twenty-five countries to send representatives to the sixth International Congress of Physical Medicine, to be held in London May 12-16. Several countries—Belgium, France, Hungary, the Netherlands, Russia and the United States—have formed organization committees and will be strongly represented. The scientific and clinical aspects of physical medicine will be discussed in seven sections: (1) kinesitherapy, (2) hydrotherapy and climatotherapy, (3) electrotherapy, (4) radiology, (5) actinotherapy, (6) radiology and (7) the teaching and organizing of physical medicine in medical schools. The meetings will be held at the Royal Society of Medicine, the Hall of the British Medical Association and the British Institute of Radiology. There will be an exhibition of physical medicine apparatus at the College of Nursing. The president and chairman of the executive committee is Sir Robert Stanton Woods. The honorary president is Lord Horder. The secretary of the congress is Dr. Albert Eidenow, 4 Upper Wimpole Street, London W. 1.

#### Safeguards Against Poisoning

Mr. H. N. Linstead, a member of the Poisons Board, addressed the Medico-Legal Society on safeguards against poisoning. He said that 892 persons died from poisoning in Great Britain in 1934 while the average number of deaths was 815 in the last ten years. Apart from coal gas (which was responsible for 1,000 suicides annually) a spontaneous solution of

cresol was the most common poison used for suicide and was taken in 300 cases, hydrochloric acid came next, with ninety cases. The needs had been shown for additional safeguards against barbiturates. The number of analogues of barbiturals introduced into medicine ran into hundreds. Each was introduced as a safe hypnotic but soon appeared in the statistics of deaths from poisoning. Analysis of national health insurance prescriptions showed that about 1 per cent were for barbiturates. Fatalities due to them were not large but had increased, the majority were suicides and nearly all the remainder accidents. New legislation provided that they should be supplied to the public only on medical prescription.

#### ACCIDENTS IN MANUFACTURE AND SALE OF DRUGS

From time to time accidents occurred in factories in which pharmaceutical preparations were made and might give rise to widespread poisoning. A few years ago a mixture was made up in concentrated form of chloroform and strychnine. The chloroform was not dissolved in the mixture but remained at the bottom with the greater part of the strychnine dissolved in it. Owing to the control exercised by the manufacturer, no serious form of general poisoning resulted. Accidents had occurred from the sale of disinfectants in sauce or whisky bottles or even in milk jugs. They had now to be sold in sealed containers.

#### ACCIDENTS FOLLOWING MEDICINAL USE

When poisons were taken medicinally, two contributory circumstances to ill effects were idiosyncrasy and the cumulative effect of taking them over prolonged periods. The effect of the regular taking of acetophenetidin in producing toxic jaundice had led to its inclusion in the 'poisons list,' so that it had to be labeled with cautionary words. The recent attention to the part played by aminopyrine in producing agranulocytic angina had led to restrictions that would bar its use in proprietary medicines. The nitrophenols and nitrocresols were liable to produce untoward results even in medicinal doses unless the basal metabolic rate was determined. At least one death had occurred in this country from the use of one of these drugs for slimming. They could now be supplied only on medical prescription. New regulations were made to render more difficult the obtaining of poison for murder and to facilitate detection. All pharmacies had to be registered and all sellers of poisons had to be listed by the local authorities. This would facilitate the task of the police in tracing supplies. But provisions had not been made to prevent the theft of drugs from the physician's car.

#### Improvement in Radium Technic

At the British Institute of Radiology, Mr. H. S. Sontag described a technic for protecting the operator using radium. The radium is automatically conveyed by pneumatic pressure through a flexible tube while the operator remains at a distance until it is actually required. At the end of the tube is a lead cylinder 16 cm. in diameter with a conical cap for convenience of application. The radium is contained in a bobbin with rounded ends which is conveyed by the tube. When not in use the radium lies in a safe fully protected by lead, outside the treatment room. When required for treatment air pressure is applied to drive the radium along the tube. Its arrival is announced by the lighting of a small electric lamp. When the two-way valve is reversed the air in the apparatus is exhausted and the bobbin is conveyed back to the safe. The whole adjustment of the apparatus can be carried out in the absence of the radium which can be instantly brought into position when the treatment is begun. A further development of the system of pneumatic transference is that units of very small dimensions but containing large quantities of radium can be used with safety.

## PARIS

(From Our Regular Correspondent)

April 14, 1936

## Bradycardia of Digestive Origin

Five cases illustrating different types of bradycardia of digestive origin were reported by Marchal, Soulie and Roy at the Dec 20, 1935, meeting of the Societe medicale des hopitaux. These five cases demonstrated the following points

1 In Loeper's case the bradycardia was associated with ulcer of the lesser curvature of the stomach, but Marchal believes it can occur with ulcerations elsewhere, especially in the first portion of the duodenum. According to Loeper, a bradycardia can be found in cancer of the colon and in enterocolitis. Marchal observed a bradycardia in two cases of duodenal ulcer, in a case of chronic gastritis and in a case of dysenteric colitis. Thus a syndrome of neuritis of the left pneumogastric nerve gives rise to a sinus bradycardia in many different forms of ulcerative and nonulcerative gastro-intestinal lesions. The bradycardia in appendicular or colic lesions is probably due to some associated irritation of the right pneumogastric nerve.

2 The time of appearance of the bradycardia and of the attacks varies. In some cases it is observed during the period of development of the lesion and becomes more marked during periods of exacerbation of the pain or bleeding. In other cases the bradycardia precedes the localization of the ulcer and finally, as in Marchal's third case, its appearance was synchronous with that of the ulcer.

3 The type of bradycardia varies. In some, an attack may directly succeed a normal rhythm. Most commonly the bradycardia is of the sinus type without modification of the PR or AC spaces.

4 The oculocardiac reflex may be weak or of the normal type or even accentuated. The atropine and effort tests are followed by an acceleration.

5 The nervous complications usually appear in the guise of pseudoveriginous, syncopal or epileptiform attacks. The association of these with a well marked sinus bradycardia permits one to place these cases in the Stokes-Adams syndrome, but one must exclude such cases from this syndrome in which the syncope is due to severe bleeding.

## Serologic Diagnosis of Brucellosis

Julien and Laurent read a paper on the biologic diagnosis of human and animal brucellosis by flocculation of serum in the presence of a specific antigen, at the January 28 meeting of the Academy of Medicine. The diagnosis cannot be made from clinical evidence alone, only laboratory tests enable a positive or at least a presumptive diagnosis to be made. The three tests that have been employed are blood culture, the serum agglutination test of Wright and the intracutaneous reaction. Blood culture gives positive results only during febrile periods in from 10 to 15 per cent of cases. One must wait from seven to twenty days for positive cultures. The Wright test is the one most frequently employed. It happens that the use of antigens insufficiently tested and other technical difficulties results in the test being often reported as alternately negative and positive. At the recent brucellosis congress in Avignon a plea was made for standardization of the test. The sero-agglutination test becomes positive only after a certain interval (from 15 to 21 days) and becomes negative again a few months after termination of the febrile period. The intracutaneous reaction is not above criticism. The authors' flocculation reaction is carried out with the aid of an alcoholic *Brucella* antigen. The technic is simple, can be easily standardized and appears to be specific. Of 111 serums only thirty-nine from cases of proved human or animal brucellosis showed floccula-

tion. Serums from seventy-two normal individuals or those suffering from other diseases were all negative. The details of the technic of this new flocculation test are given in the Jan 28, 1936, issue of the *Bulletin de l'Academie de medecine*.

## Precautions Against Attack by Enemy Airplanes

During the past six months, the frequent trials of ear-splitting sirens make one realize that the civilian population of Paris is being trained to follow immediately the precautions outlined in a special circular distributed by the police department. In the corridor of every apartment a notice has been posted stating where to seek shelter in the neighborhood against poison gas and where the nearest fire station is located, which should be notified in case incendiary bombs have been dropped on a building. The bulletin of the police department states that no portion of France can be considered immune to aerial attack, although the larger centers of population will be involved first. A bombing airplane can transport from half a ton to a ton of bombs for a distance of 300 to 600 miles from their bases. Such modern engines of destruction can attain a speed of 150 to 200 miles an hour and can fly in all kinds of weather. Against explosive bombs a bomb-proof shelter must be sought. Against incendiary bombs every modern method of extinction is to be employed, against poison gas only a shelter especially equipped or a mask is of any avail. Attention is called to the fact that civilians should not become panicky when they hear the sirens because an elaborate system of passive defense has been organized which will go into action as soon as enemy planes are signaled approaching the frontier. Unfortunately, in inclement weather this is not easily accomplished. This was recently observed when trial attacks were made on London and Paris. Clouds so obscured the planes that a passive defense was practically impossible. The police department emphasizes that the enemy not only will attempt to destroy strategic points and large industrial points but counts on demoralization of the civilian population, hence the latter should be prepared to seek protection previously arranged. Every detail of how a civilian population can take precautions against aerial attacks is given in the police department circular.

## Professor Mocquot Appointed Professor of Gynecology

Professor Mocquot, at present associate professor in the Faculte de medecine of Paris has been appointed professor of clinical gynecology. This chair was formerly held by Prof. Jean Louis Faure, who retired when he reached the age limit in 1933, and more recently by the late Professor Proust, whose sudden death occurred in 1935.

## Hundredth Anniversary of Death of Ampere

Meetings were held at Lyons, March 5-8, to commemorate the death in 1836 of one of the founders of modern electrical science, Andre-Marie Ampere. The meetings were attended by physicists, electrical engineers and representatives of the industrial side of electricity from a number of foreign countries who read papers illustrating the applications of electricity. Ampere was born in a village near Lyons in 1775 and devoted his energies at first to a study of higher mathematics but later to all the basic sciences, especially physics and chemistry. In 1808 he was appointed professor at the Ecole polytechnique of Paris and in 1814 professor of physics at the College de France and member of the Institut de France, the latter one of the highest honors to be bestowed on a scientist in France. Ampere's most important contributions were his discovery of electrodynamics, which showed that there was an intimate relation of magnetism to electricity. He also maintained that the molecules of the body are the seat of constant internal indestructible electric currents, which act between each other and also toward ordinary current according to the laws of

electrodynamics, thus creating a starting point for present-day notions of electrophysiology and radiobiology. In 1820 Ampere called attention to the galvanometer to measure the intensity of a current by its action on a magnetized needle. Later he showed how electrical tension could be measured by the electrometer. He also discovered the astatic needle to eliminate the action of terrestrial electricity on the magnetized needle. Synchronously with Avogadro he called attention to the atomic theory. Thus the latter and electromagnetism have become the bases of many modern theories. Modern medical electricity owes a great debt to the genius of Ampere.

## BERLIN

(From Our Regular Correspondent)

March 25, 1936

### Amenorrhea Among Girls in Work Camps

A large section of the young female population of Germany is lodged in the work service camps. The principal object of these camps is to indoctrinate the girls with the social and political ideals of the National Socialist weltanschauung. An equalization of city dwellers and country dwellers also is attempted. Since the medical supervisors of these camps have reported a great many cases of chronic amenorrhea, the question arises whether or not the camp regimen is in any way responsible. The gynecologist A. Mayer has expressed himself on this problem in "Erbarzt." Mayer points to the fact that in boarding schools and among servant girls, nurses, female students and female athletes, change of residence or surroundings frequently leads to suppression of the menses. He raises the question whether the *Arbeitslager* exercise an effect similar to that of any new environment or whether there is some particular influence in camp life. There are two causative complexes: (1) constitutional factors that previously existed and (2) conditional factors that originate in the *Arbeitslager*. Age is an important constitutional factor. The younger the girls the greater the incidence of menstrual irregularity. Mayer distinguishes among girls from differing environments: big city, medium sized and small town, open country. Examinations conducted by Koch in Leipzig show that the menarche begins early among girls of the larger cities and that during the last twenty years menstruation has come to begin from one to two years earlier than before. Further causes of amenorrhea are asthenic constitution, pulmonary tuberculosis and endocrine disorders involving the thyroid and pituitary bodies. The thyroid gland is held responsible for certain menstrual disorders as well as for a premature menopause. Moreover, according to Aschner, amenorrhea is more common among red haired women and also among those having marbled skin and those with debilitated sympathetic nervous systems.

Among the causes conditioned by residence at camp in addition to the psychological influence are climatic changes. Nothing definite has been determined with regard to climatic influence. Kustner has asserted that red light activates the sex hormone. Whether the change of diet leads to amenorrhea indirectly by avitaminosis is not known. It is hardly to be assumed, however, that sexual vitamins, as contained within certain plants, should be absent from the camp diet. The ergot content of flour, which in war time is a result of more complete milling conduces to 'wartime amenorrhea' certainly plays no part at present. Mayer regards the concept of an amenorrhea due to fattening as arbitrary. It has already been established that the same endocrine disturbance may lead simultaneously to an arrest of ovarian function, a suspension of the menses and an excessive deposit of fat. The question of an 'exhaustion amenorrhea' could be answered if one were able to observe such a disturbance in underexercised females following unaccustomed physical exertion. Suggestion appears to

play an important part among further possible causes of amenorrhea. Lack of privacy in common sleeping quarters at the camps certainly must give rise to a desire on the part of the camper to conceal this natural function. A powerful wish to keep menstruation from hampering one's participation in the activities and routine of the camp would act in like manner. It is recognized that voluntary influence may effect modifications in the cycle. In many regions such suggestion is connected with old symbolic customs. In Switzerland, for example, on the eve of great popular festivals, the young girls are wont to bind a bright colored ribbon about one finger or affect some other symbol in order that their participation may not be hindered by menstruation.

Perhaps the sum total of relevant somatic and psychic factors as determined by inquiries and examinations in the *Arbeitslager* for females may shed some light on the causes of the seemingly increased incidence of amenorrhea.

### The Ban on Schächten

The ban on *schächten* (slaughter according to the Jewish rite) which obtains in Germany as well as in other countries has meant a considerably reduced diet for those Jews who remain faithful to the letter of religious command. Consequently, institutions controlled by the Jewish religious community and hospitals in particular find it impossible to provide inmates or staff with abundant nourishment. According to the German legislation, warm-blooded animals must be stunned before slaughter. An electric current has frequently been used for rendering the animals senseless. If the full current is applied, as is customary, it is often strong enough to cause injury or death before the slaughter, properly speaking, has taken place. The German law does not prohibit the *schächtschnitt* (slashing of the animal's throat by the kosher butcher) as commanded by the ritual, if the animal has first been stunned. A section of Jewry is inclined to accept as kosher the meat of animals that have undergone stunning by electricity prior to slaughter by the *schächter's* knife. The utterance, before a continuation class for Jewish physicians at Frankfurt, of Dr. Gustav Oppenheim, directed the attention of the Jewish commission in Berlin for study of the *schächten* problem to the results obtainable with *electronarcosis*. Oppenheim has been able by means of an apparatus which he devised to produce long-sustained periods of narcosis in animals, which subsequently experience a complete *restitutio ad integrum*. This means that the beast may be stunned by electrical shock without any damage to its flesh. The proper religious authorities, however, have failed to understand. Perhaps the final word has yet to be spoken.

### Fate of the Prematurely Born

The program of health conservation which the Germany of today is carrying out has as its fundamental ideal the breeding of a superior race and the prevention of hereditarily diseased progeny. It should be to the interest of such a government to determine whether measures designed to preserve the lives of prematurely born infants are compatible with its political philosophy. An instructive article by Hans Henning has been published in the *Reichsgesundheitsblatt* entitled 'The Value of Preserving the Prematurely Born.' Six hundred and fifty prematurely born infants were observed at the children's clinic of the University of Frankfurt from 1925 to 1930. It was established that life expectancy was in direct proportion to weight at birth. The mortality of the premature infants in relation to weight at birth was as follows: less than 1000 Gm, 100 per cent; 1200 Gm, 98 per cent; 1500 Gm, 83 per cent; 2000 Gm, 48 per cent; from 2000 to 2500 Gm, 35 per cent. It was proved, however, that the developmental possibilities

of the surviving children were not conditioned by weight at birth. Follow-up examination of eighty-one children showed that beyond the sixth year of life no difference whatever was perceptible between the prematurely born and children born at full term. In infancy the prematurely born are especially likely to present umbilical and inguinal hernias, which, however, usually disappear as the musculature is strengthened. Almost without exception the children presented rickets. About 10 per cent showed defective intelligence and even in the mentally normal the beginning of speech and of walking came later than in children born at full term. Premature infants afflicted with syphilis almost all die. Although at the children's clinic 48 per cent of the patients admitted from 1914 to 1925 were syphilitic, the proportion was reduced to 23 per cent (or by more than half) from 1925 to 1930. Of further importance is the fact that children exhibiting retarded beginnings of speech were found in most instances to have been brought up in institutions. The monotonous environment of the orphanage lacked those stimulations to speech which are present in even the poorest family circle. There is no absolute connection between premature birth and premature death. Mortality in the first week is generally due to spinal and cerebral hemorrhages suffered during parturition. Since the question of the value of preserving the lives of premature infants can be answered in the affirmative, such preservation may be considered as within the scope of governmental policy.

## SWITZERLAND

(From Our Regular Correspondent)

March 17, 1936

### International Medical Week in Switzerland

The first "International Medical Week in Switzerland" was held at Montreux. This convention was promoted by the *Schweizerische medizinische Wochenschrift* and its editor, Prof A Gigon of Basel. The idea was to bring together in central Europe prominent foreign investigators and the leading medical scholars of Switzerland for informal professional cooperation and personal contacts. Switzerland, a neutral country, maintains five universities (besides several *hochschulen* and other separate faculties), which enjoy an excellent reputation. The Swiss universities have always been in the habit of calling foreign scholars to the professorial chairs. Also they have always emphasized the international importance of science. The total number of participants at the congress was more than 300, sixteen countries being represented. When one considers that this was the first such meeting, this attendance may be regarded as outwardly gratifying, all the more so in view of the unexpected obstacles which foreign participation encountered. These took the form not only of those stringent foreign exchange regulations in some European states which restrict freedom of intercourse beyond their own frontiers but of sudden demands and prohibitions in the matter of racial doctrine, which were based not on scientific proofs but on political considerations. These demands emanated from the German national fuhrer of medicine and were directed against the well known Viennese clinician Prof Julius Bauer, whose scholarly views on problems of race and genetics are so diametrically opposed to those of the present political leadership of medicine in the German reich. By intricate diplomatic negotiation, the ministries concerned were able to obtain an eleventh hour revocation of the ban on attendance at the convention, which had been imposed on German physicians. Still, such interferences are not conducive to good feeling, even in the case of a purely scientific congress.

The convention enjoyed the full approval and sponsorship of the Swiss government. The minister of education himself as representative of the federal council convened the gathering

and presided over the first session. The papers were submitted according to group, each daily session was devoted to a different topic.

The first day was dedicated to "General Therapy." Prof Sir Henry Dale of London discussed the "Pharmacology of Ergot." He spoke of the new alkaloids that have been isolated one after another in various quarters. A certain confusion still exists with regard to this question. Dudley and Moir isolated "ergometrine" in London. Stoll in Basel isolated "ergobasine." The isolation of an apparently similar alkaloid was recently reported from America. To all appearances, ergometrine and ergobasine are to be considered as identical substances. [The Council on Pharmacy and Chemistry (THE JOURNAL March 21, p 1008) has adopted the nonproprietary name "ergonovine" for the new oxytocic alkaloid from ergot.] After a lively discussion Dale and Stoll agreed on a joint examination of the substances in order that their identity might be finally determined. This was one of the important accomplishments of the convention.

Prof W Straub of Munich spoke of "One Hundred and Fifty Years of Digitalis Therapy." The glucosides of *Digitalis lanta* are formed in the same manner as those of *Digitalis purpurea* excepting that they are magnified by a residue of acetic acid. New glucosides to aid cardiac action can perhaps be obtained by the introduction of sugar into stearins. Straub emphasized the need for a completely organized pharmacology of the diseased heart.

The Berne surgeon Prof F de Quervain discussed "Scientific Bases for Goiter Prophylaxis."

The second day's session dealt with "Vitamins and Hormones." The Zurich chemist Prof R Karrer furnished a summary of the more recent developments in vitamin research. He stated that the customary, more or less sharp distinction between vitamin and hormone should be abolished. He pointed out that vitamin B<sub>1</sub> produces the hormone of growth in the lower fungi. In rats, mannose produces the provitamin for vitamin C, cevitamic acid. Tenuous distinctions also exist between vitamins and enzymes. The lines of demarcation between vitamins and hormones will become increasingly indistinct as our knowledge of these substances progresses.

Prof Friedrich von Muller of Munich spoke on "Recent Opinions on Obesity, How It Originates and How It May Be Combated."

Prof Ernst Laqueur of Amsterdam spoke on "Male and Female Hormones." In designating the action of sex hormones that exist simultaneously one might employ the term "synergy" instead of "antagonism." The following example supports this change. The activity of the male hormone in the seminal vesicle is increased by the presence of estrogenic substance. The older theory of counteraction between male and female hormones contains some elements of truth, the action of estrogenic substance on the prostate, for example, is hindered by a simultaneous and abundant supply of male hormone. Prof Emil Abderhalden of Halle spoke on "The Interdependence of Vitamic and Hormonic Needs in Certain States."

Prof H E Sigerist of Baltimore discussed "The Present Uneasiness in the Medical Profession." He raised the question of whether or not there is an actual plethora of physicians and concluded that, from an economic point of view, the supply is more than adequate, but insufficient if the extension of medicine into the field of individual prophylaxis and hygiene is considered.

The third day was dedicated to "Internal Medicine." The Parisian professor A Lemerre discussed septic pyemia produced by *Bacillus funduliformis*. This micro organism appears as an anaerobic saprophyte in the mouth, pharynx, intestine and genito-urinary canal. The bacillus is remarkable for its polymorphism and may produce sepsis. In several cases of

postanginal sepsis due to anaerobes observed at Paris, the causative agent was almost without exception *Bacillus funduliformis*. It attacks chiefly persons between the twentieth and thirtieth years.

Prof Egas Moniz of Lisbon next discussed 'Clinical Results from the Use of Cerebral Angiography,' a subject studied by him since 1927. In addition to its use in the localization of tumors (aneurysms and angiomas) the cerebral angiograph supplies information about the velocity of circulation, especially if several pictures are taken in relatively rapid succession.

In his newly constructed clinic Prof L. Michaud of Lausanne discussed kidney disorders. He answered the question of a relation between azotemia and chloremia by saying that no direct correlations between the two exist. He arrived at this conclusion on the basis of 190 cases, in which 1248 analyses were made.

The fourth day was devoted to "Pediatrics and Nutrition." Prof Pierre Nobecourt of Paris discussed 'Growth Insufficiencies.' Prof E. Feer of Zurich spoke on 'Specific Vegetative Neuropathy in Infants (Childhood Acrodynia), a disorder first described by him and called after him Feer's disease.'

'Cancer and Radiotherapy' was the topic on the fifth day. Prof I. Holmgren of Stockholm informed the group that he had been able to effect modifications in cancers of the stomach by the use of tuberculin and BCG vaccine. Large dosages of tuberculin were remarkably well tolerated.

Prof A. Rosset of Lausanne stressed the importance of functional radiotherapy. Therapeutic results, modifications of the sympathetic nervous system, for example may be achieved by means of the roentgen rays. Prof Emil Burgi of Berne spoke on "New Scientific Methods in Balneology."

The final day was devoted to contemporary problems. Prof F. Verzar of Basel discussed 'New Knowledge of Intestinal Resorption.' The adrenals regulate phosphorization. Since resorption of dextrose and galactose as well as of fat is effected by phosphorization, Verzar decided to investigate whether or not adrenalectomy would inhibit the resorption of fat and of dextrose. Experiments showed that in adrenalectomized animals resorption of fat was retarded in the same degree and resorption of dextrose almost to the same degree as after poisoning from monoiodoacetic acid or from phlorhizin. After injection of adrenal cortex extract, normal resorption of both dextrose and fat was resumed in the adrenalectomized animals. Prof C. Jimenez-Diaz of Madrid discussed metabolism in myopathic disorders. The Zurich psychiatrist Prof Hans W. Maier spoke on 'The Biology of Toxicomanias.' He outlined the symptoms of various addictions and the treatment and discussed the social and international aspects of the problem.

The regular attendance at the lectures was noteworthy. The audience was composed of specialists of all kinds in addition to a large number of general practitioners. Separate evening discussions were interpolated. The participants frequently would converse until midnight.

The first International Medical Week was a success. In compliance with the wishes of a large number of physicians the second International Medical Week will be held next September at Lucerne.

The management of the arrangements contributed to the success of the gathering: the official hospitality, the sumptuous outing financed by Nestle, and the hearty welcome accorded every one made it possible from the opening day for a friendly atmosphere to prevail.

#### The New Medical Clinic at Lausanne

Some time ago the New Medical Clinic was inaugurated at Lausanne with Prof L. Michaud as director. Several new institutes and clinics have been established in recent years. The Faculty of Medicine of Lausanne has aided in the modernization

of these institutions. Notable expenditures of money were made in many instances. Thanks to the sum contributed by the well known firm of Nestle, this new clinic was made possible. Located on the outskirts of the city the clinic has never been troubled for lack of space. Large airy rooms which insure absolute quiet are provided for the patients. Laboratory activities are as far removed as possible from the patients' notice. This is especially important, as it prevents the patients from feeling that they are objects of experimentation. There are 120 beds for patients, distributed over the first and second stories, on the third floor there are eighteen beds for private patients. The walls of the sickrooms are yellow. The clinic has a lecture room seating a hundred persons and a smaller room seating forty.

#### BUDAPEST

(From Our Regular Correspondent)

March 8, 1936

#### The Antivenereal Campaign

Prof Dr Edward Neuber, commissioner for the prevention of venereal diseases, stated recently that results may be obtained in the prevention of venereal diseases only if the work is done under uniform direction. The appointment of professors Lewis Nekam in 1917, Emerich Basch in 1929 and Edward Neuber in 1933 as ministerial commissioners are marks of progress in this field. Now the whole campaign against venereal diseases is centralized in the hands of these ministerial commissioners. The government reorganized the health administration in Hungary in 1924 and reformed the prevention of venereal diseases. At the meeting of the National Public Health Association in January 1925 an antivenereal committee was founded and was accepted by the ministry of social welfare and labor as a consultant body. The commissioner attaches great importance to the educational work and propaganda among the poor people and among youth. His principle is that public health laws succeed only when they meet with public understanding. It is absolutely necessary to provide medical consultation for every venereal patient and treatment for the poor. The antivenereal committee edited booklets and provided lantern slides on the symptoms of venereal diseases on the necessity of treating them and on their social importance. The commissioner was endeavoring to increase the number of dispensaries for venereal patients and to develop existing organizations in this field. These dispensaries are of great importance, and this importance will increase in the future when the new law becomes effective. Twenty-five dispensaries are now at work in the country, besides a greater number of free outpatient departments most of them work in cooperation with the National Social Insurance Institute, with the National Stephania Association and some of them with the National Public Health Institute. The obligatory premarital medical examinations encounter difficulties in this country.

Special importance is attached to periodic medical examinations in different age groups. The medical examinations carried on at Debreczin among school children of the first elementary class aimed to discover the frequency of syphilis, gonorrhea, tuberculosis, trachoma and other infectious diseases. In five years nearly 9000 school children were examined. Syphilis was found in from 4 to 5 per cent and pulmonary tuberculosis in from 20 to 25 per cent of the children. According to the new plans children with infectious diseases will be excluded from elementary schools. The periodic examinations will be made by the school physicians.

The antivenereal committee supported also the proposal made by Professor Guszmán of Budapest University for periodic blood analysis of pregnant women and antisyphilitic treatment if necessary.

## PREVENTION WORK

Dr Aladar Emodi, senior physician to the Teleia Association for the Prevention of Venereal Diseases, did pioneer work. The first social organization was established in Hungary in 1893, and this was the first movement of this kind in the world. The city of Budapest recognized the work of this association (called "Teleia") and offered it a yearly subsidy. The Teleia, under the management of Dr Emodi, surmounted many obstacles. The public at that time did not take the view that venereal patients were on an equality with other patients from the point of view of sickness benefit and drugs, but the law of 1907, proposed by Baron Szerenyi, chairman of the association, guaranteed equal treatment for venereal patients.

Venereal disease showed a great increase during the war, which stimulated the Teleia to double its energy. Dispensaries were established in several towns and effective propaganda was started. The films prepared by the association were attended by 150,000 adults, about 500,000 propaganda postcards and pamphlets were distributed. The monthly journal of the association has a circulation of 3,000 to 5,000 copies. The association reedited three booklets in popular style. Besides the Teleia, several similar associations were founded. The League Against Venereal Diseases and the Association for the Prevention of Venereal Diseases were short lived. Effective preventive work is done also by the National Social Insurance Institute and by other sickness insurance institutions, which, cooperating with other dispensaries, provide treatment for a great number of venereal patients. Remarkable work is done also by the Stephania Association, which provides dispensaries for the rural parts of the country. Propaganda is carried on also by the Museum of Social Hygiene, led by Dr George Gortvay, in permanent exhibitions in Budapest and in the country, and by lectures on Sundays in the museum.

## ITALY

(From Our Regular Correspondent)

Feb 29, 1936

## Meetings of Medical Societies

The Accademia delle scienze mediche of Naples met recently under the chairmanship of Professor Jappelli. Dr Becchini spoke on the relation between the emptying time of the stomach and the acidity of the gastric juice. The intensity of the acidity of the gastric contents can be determined by means of roentgen examination of the stomach. The emptying of the stomach after administration of 100 Gm of barium sulfate and 100 Gm of roasted meat is different in the same person when barium and meat are given simultaneously than when meat is given one hour after the administration of barium. The emptying time is less when barium and meat are given simultaneously than when there is an interval between their administration in persons with hyperacidity. The speaker advised the evaluation of the speed of emptying of the stomach, after administration of barium sulfate and meat without and with an interval, for determining gastric acidity in cases in which the stomach pump does not seem advisable.

Dr Susanna reported experiments in which he produced degeneration of the kidneys and liver of dogs and rabbits by prolonged administration of camphor. The examination of urine and the determinations of glycemia failed to show the presence of renal and hepatic disturbances during the life of the animals but the lesions were evident in microscopic studies of the organs. The pathologic alterations of the liver caused by the camphor were identical in dogs with and without biliary fistula. The speaker stated that his experiments support those who maintain that the administration of camphor is contraindicated in grave hepatic disturbances, diseases in which the oxygenation of the tissues is insufficient, diabetes and grave

forms of septicemia. The experiments prove also that camphor, administered either in small doses given for a long time or in large doses given for a short time, causes degeneration of a previously normal liver.

The Societa Piemontese di Chirurgia met recently under the chairmanship of Professor Bobbio. Dr Pescarmona discussed Comelli's sign in fracture of the scapula. The sign consists in the appearance, immediately after trauma, of a triangular tumefaction, which includes the entire area of the traumatized scapula and lasts for seven or eight days. The sign appears when the zone of spongy bone of the scapula is involved in the fracture provided, however, the integrity of the subspinal fascia is well preserved.

Dr Bobbio stated that the diffuse type of pelvic fibrosclerosis is of infectious origin, either genital or appendicular. The infection may be puerperal, gonococcal or tuberculous. Rectal disturbances predominate, frequently associated with vesical disorders and anorexia, weakness and cachexia. The differential diagnosis from malignant tumors is made by the chronic evolution of the disease and also by the clinical observations. The uterus is painful and fixed when it is felt by palpation and the rectum is deviated and stenosed. The prognosis is reserved. Medical treatment is indicated early in the development of the disease, but when changes in the rectum take place surgical treatment is indicated. Vaginal hysterectomy may be useful also in liberating the rectum. The speaker obtained satisfactory results from exploratory laparotomy followed by administration of medical treatment.

Drs Colombo and Romero reported results of studies made for the determination of chronaxia in twenty-three patients suffering from amyotrophy following articular infection and trauma. The speakers found that in all cases the chronaxia of the atrophic muscle is increased when the causal lesion is in evolution. The values of the chronaxia of the nerve are constantly normal.

## The Development of Hydrology

At a recent meeting of the *Corporazione della ospitalita*, the development of hydrology as a branch of medicine was discussed. Dr Rebucci asked for the establishment of a chair for the teaching of medical hydrology and also for the compulsory organization of centers for controlling the effects of hydrologic treatment in all thermomineral stations. The speaker emphasized the importance of preparing scientific literature about Italian mineral springs, in order to make their properties known.

Dr Vidau spoke on the importance of creating autonomous centers for the teaching of the subject. The speaker, having in mind that the establishment of a chair of hydrology meets economic difficulties at present, suggested the organization of courses the expenses of which could be covered by taxes collected, and also the organization of a high school of hydrology which would be supported by municipalities and other hydrologic centers.

Dr Quitadamo advocated the modernization of mineral springs and the reduction of expense in order to give persons of modest means the opportunity of receiving treatment when indicated.

## Congress of Dermatology and Syphilology

The Societa italiana di dermatologia e sifilografia will hold its thirtieth reunion in October under the chairmanship of Professor Tommasi. The official topics will be occupational dermatoses and the evaluation of social problems in Italy due to syphilis and gonorrhea. The second official topic will be subdivided into evaluation of the problem from a dermatographic point of view, evaluation of the problem from the point of view of production of work, economic burden of prevention, and treatment of syphilitic patients and syphilitic mothers.



## Marriages

OTTO FLOYD ROGERS JR, Bloomington Ind, to Miss Ruth Madelaine Wills of Connorsville, March 28

JAMES C DOYLE, Los Angeles, to Miss Jacqueline White of Spokane, Wash in Riverside, Calif, April 2

WALTER L THOMAS JR, Lynchburg, Va, to Miss Maisie Denhold of Durham, N C, March 10

NICHOLAS FLOYD ADAMS JR to Miss Margaret Bardelle Roberts, both of Baltimore April 24

NORVAN R INGRAHAM JR to Miss Louise Brown, both of Philadelphia, April 18

## Deaths

Carl Fredric Moll @ Flint, Mich Saginaw (Mich) Valley Medical College, 1899, member of the House of Delegates of the American Medical Association from 1926 to 1935 past president of the Michigan State Medical Society and the Marquette County Medical Society, an associate of the American College of Physicians, physician to the Michigan School for the Deaf, on the staffs of the Hurley Hospital St Joseph's Hospital and the Women's Hospital aged 64 died suddenly in Detroit, May 1, of acute myocarditis while in a taxicab

Herbert L Northrop, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1889 member of the Medical Society of the State of Pennsylvania, professor of surgery, and formerly dean at his alma mater fellow of the American College of Surgeons surgeon to the Hahnemann Hospital and Dispensary member of the consulting staffs of the Broad Street Hospital and of the Women's Homeopathic Hospital, aged 70, died, May 3, at his home in Melrose Park, of bronchopneumonia

Henry Denny Thomason @ Colonel, U S Army retired New York University of Pennsylvania Department of Medicine, Philadelphia 1882, entered the army as an assistant surgeon in 1903 veteran of the Spanish-American and World wars, was retired with rank of colonel in 1930 for disability in line of duty, formerly superintendent of the New York Homeopathic Medical College and Flower Hospital aged 77, died February 27, of coronary thrombosis

William Tweedy Getman @ Buffalo University of Buffalo School of Medicine 1901, assistant professor of obstetrics at his alma mater, fellow of the American College of Surgeons veteran of the Spanish-American War, attending obstetrician to the Buffalo General Hospital Buffalo City Hospital Millard Fillmore Hospital and the LaFayette General Hospital aged 59 died, February 20 of coronary occlusion and arteriosclerosis

Charles Crawford Hinton @ Macon Ga Johns Hopkins University School of Medicine Baltimore 1913 past president of the Bibb County Medical Society fellow of the American College of Physicians served during the World War laboratory consultant to the U S Veterans Administration and internist to the Middle Georgia Sanatorium, aged 47 died February 25, of angina pectoris

H Hershey Farnsler @ Harrisburg Pa Medico Chirurgical College of Philadelphia, 1904 member of the American Academy of Ophthalmology and Oto Laryngology fellow of the American College of Surgeons aged 57 consulting surgeon department of ophthalmology and otolaryngology Harrisburg Hospital, where he died, March 14 of acute nephritis

Christopher M Reyher, Gary Ind Northwestern University Medical School, Chicago 1906 member of the Indiana State Medical Association, fellow of the American College of Physicians formerly city health officer and president of the board of health aged 55 was killed February 12 when the automobile which he was driving was struck by a train

Albert Lee Coffield, New Martinsville W Va Eclectic Medical College Cincinnati 1911 member of the West Virginia State Medical Association past president of the Tyler-Wetzel County Medical Society formerly county health officer on the staff of the Wetzel County Hospital aged 50 died suddenly February 26 of cardiorenal disease

Thomas Rollins Marshall @ Major U S Army retired Wm Va, College of Physicians and Surgeons Baltimore 1893 veteran of the Spanish American and World wars

entered the medical corps of the army as a major in 1920 and retired in 1930 for disability in line of duty, aged 64 died, February 22, of coronary occlusion

Charles Franklin Watkins @ Billings Mont, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901, fellow of the American College of Surgeons formerly city and county health officer and member of the city council surgeon to St Vincent's Hospital, aged 63, died, March 4, of bronchopneumonia

Tracy Earl Clark, Brooklyn Long Island College Hospital, Brooklyn, 1900, formerly instructor of chemistry at his alma mater professor of physiology and toxicology and assistant professor of materia medica, botany and pharmacognosy, Brooklyn College of Pharmacy, aged 69, died March 5, of carcinoma of the prostate

Joseph Ellmore Wier @ Evansville, Ind, Indiana University School of Medicine, Indianapolis, 1913, served during the World War member of the Associated Anesthetists of the United States and Canada, aged 52, on the staff of the Wellborn-Walker Hospital, where he died, March 16, of liver abscess and septicemia

Harry G Grable @ Kokomo, Ind, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906 past president of the Howard County Medical Society, on the staff of the Good Samaritan Hospital aged 53 died February 23, of coronary thrombosis, arteriosclerosis and gastric ulcer

Conrad Rowland Hoffman @ Glens Falls, N Y Albany (N Y) Medical College 1903 past president and secretary of the Warren County Medical Society, fellow of the American College of Surgeons aged 55 on the staff of the Glens Falls Hospital, where he died February 9, of carcinoma of the colon

George Daniel Balsbaugh @ North Manchester, Ind, Kentucky University Medical Department Louisville, 1904 president of the Eleventh District Medical Society, past president of the Wabash County Medical Society, aged 56, died, February 21, of coronary thrombosis and myocarditis

Carl A Bartholomew @ Martin Mich Detroit College of Medicine 1903 past president of the Kalamazoo Academy of Medicine for many years county coroner, aged 59, on the staffs of the Borgess Hospital and the Bronson Hospital Kalamazoo where he died February 15, of angina pectoris

Silas Rogers Corwith, Bellport, N Y, College of Physicians and Surgeons Medical Department of Columbia College New York 1883 past president of the Suffolk County Medical Society health officer of Bellport aged 77, died, February 26 of cerebral arteriosclerosis

Theodore Frank Foster, Pensacola, Fla, University of Cincinnati College of Medicine, 1921 at one time health officer of West Hartford Conn, formerly epidemiologist of the bureau of health of Knoxville Tenn aged 37, died, February 10, of bilateral polycystic kidney and uremia

Percy Augustus Perkins @ Memphis Tenn University of Virginia Department of Medicine Charlottesville 1908 fellow of the American College of Surgeons served during the World War on the staff of the Methodist Hospital, aged 52, died, February 20 of lobar pneumonia

William G Winter @ Holland Mich University of Michigan Department of Medicine and Surgery Ann Arbor 1906 fellow of the American College of Surgeons, for many years on the staff of the Holland City Hospital aged 52 died, February 9 of lobar pneumonia

Leland Vain Grady, Wilson N C North Carolina Medical College, Charlotte, 1913 member of the Medical Society of the State of North Carolina medical superintendent of the Carolina General Hospital aged 47 died February 21 in Bladenboro of pneumonia

Joseph Nicholas Bennett Garlick @ Schenectady N Y Albany Medical College 1904 president of the Schenectady County Medical Society, health commissioner of Schenectady aged 53 died February 17 in the Unitilla (Fla) Hospital of heart disease

Clifford Eugene Alexander, Duluth Minn University of Minnesota Medical School Minneapolis 1925 member of the Minnesota State Medical Association on the staffs of St Luke's and St Mary's hospitals aged 34 died in February of injuries received in a fall

John Morgan Smith Berkeley Calif University of Nashville (Tenn) Medical Department and Vanderbilt University School of Medicine Nashville 1893 aged 70 died February 8 in the Humboldt Hospital Albany of coronary sclerosis and myocarditis

**Charles H. C. Mills**, Charlotte, N. C., University of Maryland School of Medicine Baltimore, 1899, at one time professor of obstetrics and clinical gynecology, North Carolina Medical College, aged 68, died, March 5, of arteriosclerosis and heart disease.

**William Bernard Funk**, Chicago, Dearborn Medical College, Chicago, 1907, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, aged 56, died, February 4, of chronic myocarditis and nephritis.

**John E. Cunningham**, Fowlerville, Mich., Detroit College of Medicine, 1894, member of the Michigan State Medical Society, aged 74, died, February 12, in St. Lawrence Hospital, Lansing, as the result of fracture of the hip received in a fall.

**Cornelius Francis Cooley**, Schenectady, N. Y., Georgetown University School of Medicine, Washington, D. C., 1934, aged 24, assistant resident to the Ellis Hospital, where he died, February 3, of appendicitis and peritonitis.

**Hugh Alexander McKay**, New Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1914, member of the American Psychiatric Association, superintendent of the Ontario Hospital, aged 51, died, February 14.

**Samuel Arnold Dorfmann**, New York, Baltimore University School of Medicine, 1898, aged 64, died, March 12, in the New York Post-Graduate Medical School and Hospital, of acute cholecystitis and bronchopneumonia.

**Robert Brodie Glasgow**, Burlington, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1878, aged 81, died, February 25, in the Odd Fellows Home, Trenton, of chronic myocarditis and arteriosclerosis.

**Clarence Wallace Flint**, Chicago, Chicago College of Medicine and Surgery, 1917, served during the World War, aged 46, died, March 10, in the Veterans Administration Facility, Hines, Ill., of pneumonia.

**Melvin Ellwood Beachy**, Grantsville, Md., University of Pennsylvania School of Medicine, Philadelphia, 1935, aged 31, died, January 29, in the National Stomach Hospital, Philadelphia, of sarcoma of the ileum.

**John Seymour Emans** & Gabriels, N. Y., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1892, aged 71, died, March 11, of cerebral hemorrhage and arteriosclerosis.

**Clarence Linden Lewis Jr.**, Richmond, Va., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888, aged 71, died, January 28, in Biloxi, Miss., of angina pectoris.

**Charles Harvey Archibald**, New York, Jefferson Medical College of Philadelphia, 1890, aged 71, died, February 28, in Ashbur Park, N. J., of carcinoma due to x-ray burns of the left arm and chest wall.

**Marquis E. Daniel**, Honey Grove, Texas, Eclectic Medical Institute, Cincinnati, 1888, member of the state board of medical examiners, formerly mayor, aged 69, died, March 9, of coronary embolism.

**George Henry Bickley**, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1894, clinical professor of gastroenterology at his alma mater, aged 63, died, March 19, of heart disease.

**Robert Lawrence Piper**, Tyrone, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1892, for many years member of the board of education, aged 70, died, February 15, of uremia.

**Horace Emlen Westhaeffer**, Sunbury, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1875, aged 85, died, February 25, in the Mary M. Packer Hospital, of pneumonia.

**Mary E. Lapham**, Highlands, N. C., Woman's Medical College of Pennsylvania, Philadelphia, 1900, served during the World War, aged 75, died recently, in St. Augustine, Fla., of heart disease.

**Frank Sumner Lowell**, Cambria, Calif., Cooper Medical College, San Francisco, 1892, aged 71, died, February 11, in San Luis Obispo, of chronic pyelonephritis, cerebral thrombosis and uremia.

**Augustus Lucius Chase**, Randolph, Mass., Eclectic Medical Institute, Cincinnati, 1872, formerly member of the Board of Registration in Medicine, aged 86, died, February 28, of chronic cystitis.

**Augustus Wellington Chandler** & Rockford, Ill., Rush Medical College, Chicago, 1887, fellow of the American College of Surgeons, aged 75, died, March 24, of paralysis agitans.

**Oscar H. Kniffler**, New York, Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, 1889, aged 72, died, January 27, of aneurysm of the aorta.

**Albert Anderson Long**, Kansas City, Mo., Ensworth Medical College, St. Joseph, 1913, veteran of the Spanish-American War, aged 65, died, January 19, of sarcoma of the femur.

**Joseph Clifton** & Memphis, Tenn., University of Nashville Medical Department, 1906, on the staff of the Methodist Hospital, aged 62, died, January 26, of heart disease.

**Edward Lyman Kingman** & Newtown, Conn., Yale University School of Medicine, New Haven, 1894, aged 64, died, January 1, of peritonitis and cerebral embolus.

**Hardin Davenport Irvan**, Gladewater, Texas, Jefferson Medical College of Philadelphia, 1909, aged 52, died, March 9, of injuries received in an automobile accident.

**Fred William McKibbin**, Oakdale, Calif., University of Vermont College of Medicine, Burlington, 1900, aged 61, died, February 17, of cerebral arteriosclerosis.

**Crittenden E. Keller**, San Antonio, Texas, Texas Medical College and Hospital, Galveston, 1881, aged 87, died, March 2, of arteriosclerosis and senile dementia.

**Horace W. Durnall**, West Chester, Pa., Columbian University Medical Department, Washington, D. C., 1878, aged 86, died, February 29, of chronic nephritis.

**George John Seufert**, Franklin Square, N. Y., University and Bellevue Hospital Medical College, New York, 1899, died, January 24, of pulmonary tuberculosis.

**Fred Kittredge Lenfestey**, Mount Clemens, Mich., Western University Faculty of Medicine, London, Ont., 1903, aged 58, died, January 25, in Tampa, Fla.

**Cuthbert Lynn Hosmer**, Houston, Texas, Maryland Medical College, Baltimore, 1907, aged 59, died, February 19, of uremia, arteriosclerosis and nephritis.

**Albert W. Phelps** & East Aurora, N. Y., University of Buffalo School of Medicine, 1898, aged 64, died, January 26, of myocarditis and arteriosclerosis.

**James Monroe Crowley**, Portland, Ore., Missouri Medical College, St. Louis, 1891, aged 76, died, February 11, of arteriosclerosis and angina pectoris.

**Samuel Addison Taylor**, Montpelier, Ky., Kentucky School of Medicine, Louisville, 1890, aged 78, died, in February, of cerebral hemorrhage.

**Frank M. Kindig**, Chicago, Northwestern University Medical School, Chicago, 1894, aged 62, died, January 31, in the Wesley Memorial Hospital.

**James Madison Muse**, Conway, Ark., University of Arkansas School of Medicine, Little Rock, 1914, aged 68, died, February 25, of pneumonia.

**Francis Edward O'Brien**, Auburn, N. Y., Bellevue Hospital Medical College, New York, 1894, aged 65, died, January 31, of cerebral hemorrhage.

**Leander O. Jones**, Hebbardsville, Ky., University of Louisville Medical Department, 1880, aged 84, died, February 18, of cerebral hemorrhage.

**Joseph H. De Bra**, Dayton, Ohio (licensed in Ohio under the Act of 1896), Civil War veteran, aged 94, died, February 20, of myocarditis.

**Ruth B. Carroll**, Columbia, S. C., Meharry Medical College, Nashville, Tenn., 1908, aged 46, died, January 28, of cerebral hemorrhage.

**Joseph Aloysius Lamb**, Le Mars, Iowa, University Medical College of Kansas City, 1904, aged 61, died, February 4, of chronic nephritis.

**Grant Wallace Pendleton**, Idaho Falls, Idaho, Denver College of Medicine, 1888, aged 71, died, January 30, of cerebral hemorrhage.

**Thomas R. Cravens**, Chicago, Harvey Medical College, Chicago, 1897, died, March 23, in St. Louis, of chronic myocarditis.

**William L. Hill**, Roswell, N. M., Hahnemann Medical College and Hospital of Philadelphia, 1892, aged 77, died, in January.

**Samuel Luther Perkins**, Wilkesboro, N. C., Baltimore Medical College, 1891, aged 76, died, January 29, of heart disease.

**William H. Manes**, Tulsa, Okla., University of Louisville (Ky.) Medical Department, 1891, aged 70, died in February.

**Lewis Samuel Eastlake**, Los Angeles, Detroit College of Medicine, 1892, aged 72, died, February 6.

## Correspondence

### ADDISON'S DISEASE FOLLOWING ADRENAL DENERVATION

To the Editor—In THE JOURNAL, January 25, page 279, Dr J M Rogoff reported "Addison's Disease Following Adrenal Denervation in a Case of Diabetes Mellitus" While the diagnosis of Addison's disease was probably correct it should be pointed out that necropsy was not permitted and Dr Rogoff's statement that "the surgical manipulations apparently resulted in occlusion of blood vessels and degeneration of the adrenal cortex" is pure speculation Physiologists usually criticize post hoc propter hoc reasoning

The editorial (p 294), apparently based on Rogoff's one unverified case, proceeds to attack irradiation of the pituitary and adrenal areas as a treatment of hypertension and suggests by inference that this is irradiation of the kidneys, which is one effective way of producing hypertension" This statement is apparently predicated on the work of Page (*Am J Physiol* 112 166 [May] 1935) The writer appeared to be unfamiliar with Page's work or with irradiation used in the treatment of hypertension or with the significance of the different dosages used Page transplanted the kidneys to an abnormal position just under the skin From five to seven erythema doses of irradiation was then applied to each kidney We use 120 kilovolts, 3 milliamperes, 50 cm skin target distance, 2 mm of aluminum filter, five minutes On our machine this delivers 50 roentgens, about one ninth of one erythema dose and only slightly more than half as large as that used by dermatologists

It has been demonstrated that doses of x-rays large enough to damage the adrenals are not followed by any reduction in blood pressure or relief of symptoms of which hypertensive patients complain (*New England J Med* 211 952 [Nov 22] 1934) It has been proved experimentally, that with removal of one adrenal followed by the direct application of x-rays to the one remaining adrenal, it is necessary to use from ten to fourteen erythema doses before there is any sign of functional damage to the adrenal (*Am J Physiol* 93 219 [May] 1930)

Finally, there is now a series of something over 500 cases that have been treated by the method of irradiation that we use Approximately three out of four patients report symptomatic relief and a material reduction in blood pressure This has been true not only in our series but also in the hands of other workers who employ the same technic that we use So far not the slightest damage has been reported to the skin, the hair, the pituitary, the adrenals or the kidneys A number of patients have been under observation for more than three years, which seems sufficient time for symptoms of pituitary or adrenal damage to manifest themselves One case has come to autopsy The woman had had much larger doses than are ordinarily employed They were without material effect on her blood pressure Adenomas were found in the cortex of both adrenals There was no evidence of x-ray damage to the pituitary or adrenals No one can disagree with the editorial writer that the hazards of treatment should be less than the hazards of disease That principle was adopted before the irradiation method of treatment for hypertension was ever employed it has been consistently followed at all times

JAMES H HUTTON MD, E E MADDEN MD  
M J HUBENY, MD Chicago

{NOTE—The letter of Drs Hutton Madden and Hubeny was referred to Dr Rogoff, who replies }

To the Editor—The comments by Drs Hutton, Madden and Hubeny on my paper of January 25 and on the editorial in the same issue of THE JOURNAL impress me as an unconvincing clinical argument in favor of a risky empirical practice The

interpretations of the literature indicate an inadequate comprehension of the physiologic premises Page (*Am J Physiol* 112 166 [May] 1935) obviously displaced the kidney to a superficial position because he desired to irradiate only the kidney and to avoid exposure of other organs to irradiation Irradiation of the 'adrenal region' would include the kidney, which as Page showed, can produce hypertension Baird Lingley and Palmer (*New England J Med* 211 952 [Nov 22] 1934) did not claim that they damaged or attempted to damage the adrenals Pertinent interpretation of their paper should be made from their own statements that hypertensive patients are very suggestible, that there are marked spontaneous variations both in blood pressure and in the symptoms of patients with essential hypertension' Their conclusion reads 'Eight patients with essential hypertension in the late stages of the disease have been treated by roentgen radiation over pituitary or adrenals or both In the dosage used, no strikingly favorable effect on blood pressure or symptoms has been noted' Rogers and Martin (*Am J Physiol* 93 219 [May] 1930) irradiated the remaining adrenal, under anesthesia in unilaterally adrenalectomized dogs They observed that adrenal insufficiency may develop, even with smaller doses appearing some time after irradiation They also review literature of reliable experimental work by competent investigators on the great susceptibility to injury by roentgen irradiation of the mucosa of the alimentary tract, the kidneys, the pancreas and other organs

In view of the present inadequate knowledge concerning possible delayed (or immediate) injury to important structures roentgen radiation in any effective dose cannot be considered an indifferent procedure' Incidentally since experimental evidences are being considered I may call attention to the paper by La Barre (*Sang* 7 487 1933), who contends that small doses cause an increase in epinephrine secretion from the adrenals If so, this would certainly be anything but desirable or helpful in a patient with hypertension

The reference by Drs Hutton Madden and Hubeny to the diagnosis of Addison's disease, in my paper, as 'probably correct' and to my interpretation of the adrenal cortical damage as 'pure speculation,' because an autopsy was not permitted, is interesting Their implication that not the slightest damage to the adrenals pituitary or the kidneys occurred following roentgen irradiation is apparently not considered "pure speculation" Shall it be assumed that this is based on autopsy in each of the 500 cases mentioned and not on post hoc propter hoc reasoning' It would be a valuable contribution if they could suggest a more tenable explanation than mine for the cause of Addison's disease in the case under discussion I suggest a more careful perusal of my paper and of the article (reference 2) cited by me That may aid in a better understanding of the production of adrenal cortical insufficiency through traumatic and circulatory factors which lead to irreparable degeneration and also of the relation of such factors to serious or fatal adrenal insufficiency (e g, Addison's disease)

The alleged subjective improvement offered as the final and only proof of the value of roentgen irradiation of the pituitary and adrenal regions in hypertension is no more convincing than patients testimonials in the case of certain cancer cures faith cures or cures of rheumatism by toe twisting The report on Addison's disease following adrenal denervation in a case of diabetes mellitus was published by me primarily, as a warning against possible serious consequences of interfering with an indispensable organ especially when such a procedure is based on hypothetical concepts Obviously the author of the editorial in THE JOURNAL was guided by the same motive It seems evident that my report and the editorial recommendations of caution are timely, as expressed in the numerous personal communications received by me from readers of THE JOURNAL

J M ROGOFF MD Chicago

## THE DUCTLESS GLANDS—A DISCLAIMER

To the Editor —In the April issue of the magazine *Esquire* appeared an article by George Antheil on the ductless glands in which my name was mentioned. Mr Antheil is a former patient who became much interested in endocrinology. He read everything he could on the subject and made himself acquainted with some of the concepts of the field. Early this year he told me that he was contemplating writing an article on the ductless glands for *Esquire*. I told him that he would display the audacity of ignorance in writing such an article for any magazine, and that I was sure that it was bound to be full of inaccuracies and absurdities. He then asked me whether he might use my name, either my first or my last, if he decided to write such an article on his own responsibility, and I definitely refused permission. I was under the impression that our single conversation on the subject had put a stop to the writing of the article and I was astonished to hear that it had been written and published. On reading it I found it to be replete with preposterous inaccuracies and misstatements, not only scientific, but also personal. I wish to emphasize the following:

1 I did not see this article when it was written or before it was published.

2 I strongly opposed the writing of such an article.

3 There is not a single social occasion referred to, involving either men of genius, pugilists or dancers, that is correctly depicted, and the whole can be referred to politely only as "fictionized autobiography."

LOUIS BERMAN, M D, New York

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

## TUBERCULOSIS IN PREGNANCY

To the Editor —Please discuss the proper management of a pregnancy and labor of a tuberculous tertipara in the sixth month of pregnancy. She first knew of her condition three years ago. At present she has no cough fever or sputum; she has a good appetite and is gaining from 4 to 6 pounds per month. Roentgen examination shows an exudative productive lesion of a large area of the right upper lobe. On auscultation there are fine crepitant rales in the infracavicular region. Is it absolutely necessary to deliver with forceps? How long should she remain in bed during the puerperium? Is nursing contraindicated? Should BCG vaccine be used in the infant? Please omit name.

M D New York

ANSWER —Phthisiologists generally believe that the course of pregnancy and labor is only slightly effected by pulmonary tuberculosis. It is imperative, however, that a patient with pulmonary tuberculosis be under the care of both an obstetrician and a phthisiologist. Furthermore, the care on the part of the latter should continue for at least six months after delivery. Since this patient has no fever or cough or loss of weight, the prognosis is good, but in spite of this she must be carefully watched. When she goes into labor, special efforts should be made to conserve her strength, to diminish pain as much as possible and to eliminate if possible the second stage without harm to mother or baby. Hence as soon as pains are regular and strong, analgesia should be administered in the form of morphine, sodium amylal or similar drugs. As soon as the cervix is completely dilated and effaced the baby should be delivered with forceps, provided the head is engaged. In primiparas an episiotomy should be made. When the delivery can be accomplished by an easy low forceps delivery, direct infiltration anesthesia with 0.5 per cent procaine hydrochloride should be used. Otherwise ethylene-oxygen or nitrous oxide-oxygen should be used for the forceps delivery. All bearing-down efforts must be avoided in multiparas as well as in primiparas. Special hygienic care is important immediately after labor. Women with pulmonary tuberculosis should not nurse their babies; hence the breasts should be bound up snugly and fluids restricted for a few days. Nursing is prohibited both because it is a severe strain on the mother and also because it may be a means of infecting the new-born child. The length of time a patient should remain in bed after delivery depends

on her general physical condition. If there is no elevation of temperature, two weeks may be sufficient, but if fever is present the patient may have to remain in bed for many weeks and months. There is no need to use BCG vaccine in the infant.

An excellent exposition of this subject may be found in "Gynecological and Obstetrical Tuberculosis," by E. M. Jamieson, Philadelphia, Lea & Febiger, 1935.

## PREVENTION AND TREATMENT OF BRUCELLA ABORTUS INFECTION

To the Editor —Owing to the fact that several herds of cattle in this community are infected with *Brucella abortus* I am deeply interested in learning all that I can about this disease in stock as well as its effects on the human patient. 1 Will pasteurizing infected milk at 140° F for thirty minutes render such milk safe for human consumption? 2 What is known concerning the length of time these organisms can live in infected pastures where they are exposed to the sunlight and heat of summer and the freezing temperatures of winter? 3 A rather prominent dairy man in one of our larger centers is credited with the statement that butter made from infected milk quickly loses its infectivity because of its salt content. Is there any truth in this statement? 4 Am I correct in saying that when an infected bull is removed from a herd the infected cows will immunize themselves? 5 Also that an infected cow that has been given vaccine treatment over an adequate period also apparently returns to normal so far as giving birth to normal term calves? But the point in question here is whether these animals act similar to a human typhoid carrier and continue to throw off the infecting organisms causing undulant fever or whether the germs are entirely eradicated from the excreta. 6 Is the disease transmitted from the mother to the calf in cases of treated cows or in those that have apparently immunized themselves? 7 Could the consumption of infected milk by a pregnant woman cause abortion? 8 Are there any known methods of ridding an infected pasture of this contagion? 9 What is known relative to birds, rabbits and other animals transferring the disease from one locality to another? 10 Relative to therapy for human beings I have recently learned of a new treatment consisting of giving the undulant fever vaccine to a non-infected donor and then using the donor's blood or serum to treat the infected patient. I would appreciate a description of this method and your opinion as to its value as compared with the direct method of treating the infected patient with the undulant fever vaccine. Kindly omit name.

M D Missouri

ANSWER —1 Pasteurization of milk at 140° F for thirty minutes will destroy *Brucella* organisms.

2 C. P. Fitch (Report of Experimental Work in the Control of Bovine Infectious Abortion, *J. Am. Vet. Med. Ass.* 75:215 [Aug.] 1929) of the University of Minnesota states that *Brucella* organisms are not long lived outside the animal body; he believes that physical contact, especially "licking," is the principal way by which this infection is conveyed from animal to animal in the barn and paddock. In the pasture the aborted fetus and resultant contaminated food also become important factors in the spread of the disease.

3 C. M. Carpenter and Ruth Boak (*Brucella Abortus* in Milk and Dairy Products, *Am. J. Pub. Health* 18:743 [June] 1928) inoculated butter, prepared from pasteurized cream, with *Brucella abortus*, the salt content of the butter was 1.5 per cent. The organisms were still viable after 142 days of refrigeration at 46.4° F (8° C). C. P. Fitch and Lucille M. Bishop (Presence of Bacterium *Abortus* Bang in Raw Milk Butter and Ice Cream, *Proc. Soc. Exper. Biol. & Med.* 30:1205 [June] 1933) prepared butter with cream collected by gravity separation from the milk of cattle known to be shedding *Brucella abortus*. One half of the butter was salted (3 per cent) and one half was not salted. *Brucella abortus* was isolated from the salted and unsalted butter and from the buttermilk. These observers also recovered *Brucella abortus* from ice cream prepared from cream known to be naturally infected.

4 No.

5 The use of vaccines containing living *Brucella* organisms has been largely abandoned because of the danger of infecting cattle with the living organisms. Many cows continue to eliminate *Brucella* organisms in the milk for many months after all clinical evidence of the disease has disappeared.

6 If segregated from infected herds soon after birth, more than 90 per cent of the calves born from infected dams will become negative to the blood tests at from 3 to 6 months of age. This apparent immunity of calves to *Brucella* infection provides an opportunity to build up clean herds from the calves of infected animals.

7 Yes.

8 No accurate information is available.

9 No accurate information is available.

10 It is conceivable that the production of passive immunity by repeated injections of *Brucella melitensis* (*abortus*) vaccine in a noninfected donor might supply sufficient immune bodies to produce a favorable influence on the course of the disease following the transfusion of such blood to a patient with brucellosis. Vaccine therapy of patients with active brucellosis appears to produce a favorable influence in the majority of cases.

## TREATMENT OF OILY SKIN

To the Editor—Is there any special diet that influences excessive oiliness of the skin and scalp? Any suggestion as to local application will also be appreciated. Please omit name and address.

M D, Texas

ANSWER—There is no doubt that the restriction of fats and carbohydrates will lessen in some degree the production of sebum, but it is never sufficient alone to correct oversecretion. The patient must be examined thoroughly and any underlying disorder, such as anemia, constipation or focal infection, corrected.

Washing the face with hot water and soap, applying hot towels for ten minutes or more, then cold water and a brisk rub has a good effect. It should be done at least once daily, better both morning and evening. This with the use of a face powder containing 1 or 2 per cent sulfur or 3 per cent salicylic acid may be sufficient. If not, lotio alba (sulfurated potash and zinc sulfate, of each 2 Gm in 60 cc of rose water) may be applied at night after the washing and hot packs. This is to be shaken, dabbed on and allowed to dry. In the morning the face is washed as usual with soap and water. When the face becomes dry and scaly, whether generally or, as often happens, about the angles of the mouth, treatment must be suspended on the scaly area. If sulfur is not well borne, salicylic acid from 1 to 3 per cent, may be used in alcohol.

Ultraviolet exposures daily or every other day, or sun baths, have a decided drying effect. The risk of increased freckling or tanning must be taken. It is temporary. The same may be said of roentgen treatment, which in divided doses of from 37.5 to 75 roentgens each week is the most powerful of all methods and gives the most lasting effect. It should not be carried further than a total of three erythema doses (900 roentgens) for fear of late untoward effects.

For the oily scalp, lotio alba, which here may be used in double strength, 4 Gm of each of the ingredients in 60 cc of rose water, may give prompt amelioration. It should be well shaken, put on the scalp with a medicine dropper, and rubbed in with the fingers. The salicylic acid alcohol may be used in the scalp with good effect, the strength increased to 5 or 10 per cent. Ether, 10 or 20 per cent, may be added to dissolve the grease, which can be removed to some extent by rubbing the scalp with a paper towel. Frequent shampooing once or twice a week is called for. In spite of the fact that brushing and massage bring out sebum from the follicles, they should not be neglected, for their aid in increasing circulation is invaluable. Especially is this true in cases in which the hair is falling too rapidly. Sunlight exerts a beneficial effect, as does ultraviolet radiation. Going without a hat in a sunny climate or daily exposures to ultraviolet rays will be beneficial.

## PHLEBITIS

To the Editor—I have a case of severe phlebitis in the right leg which I have treated by rest, slight elevation of the leg and heat from an electric bulb. Could you please tell me if there is any other treatment that I could use ambulatory or otherwise? Please omit name.

M D Rock Island Ill

ANSWER—The treatment of thrombophlebitis in the acute stage is absolute rest in bed, elevation of the involved extremity and the application of heat, either by radiation or by moist hot packs. When the systemic temperature is no longer elevated and when edema and tenderness over the vein have disappeared the patient may be allowed out of bed. This period of active treatment is a variable one but rarely exceeds three weeks and is usually only a week or ten days. There is no value and perhaps considerable harm in keeping the patient in bed for a long period after he has phlebitis. From the clinical standpoint possibilities of detachment of the thrombus with subsequent pulmonary infarction or embolism are no greater almost immediately after the temperature is normal and edema and tenderness have disappeared than after a much prolonged period of rest in bed. After the condition is satisfactory enough to allow the patient to be up the sole problem of treatment is one of adequate support to prevent edema. The cloth bandages ordinarily used for this purpose are usually insufficient. Most satisfactory is a pure rubber bandage of moderate weight which is 3 inches wide by 15 feet long. This should be applied over a hosiery stocking beginning with two turns about the foot, making a figure eight about the ankle, and progressing up the leg to just below the knee. Such a bandage should be applied tightly enough to prevent edema and loosely enough so that it does not interfere with circulation, the symptoms of which are numbness, tingling coldness and excessive cyanosis of the toes. The bandage should be removed at midday and it is advisable ordinarily, for the patient to lie down for a while. It is then

reapplied over a dry stocking, and this procedure is repeated in the evening if the patient is active at this time. If he is inactive, he may lie or sit with the leg elevated.

Approximately one day of every month is used as a test period. The patient goes about normal activity without the use of the bandage. If edema occurs, it is necessary for him to resume the use of the bandage for another month. The bandage should never be discarded permanently until edema does not occur after ordinary activity. The period over which it is necessary to wear a bandage varies from two or three months to an indefinite number of years. If edema in the extremity is prevented by adequate bandaging, there will not be any subsequent complications, such as varicose veins, ulcers, stasis dermatitis, and lymphangitis.

## INCUBATION PERIOD IN MENINGITIS

To the Editor—How long from the commencement of the attack of epidemic cerebrospinal meningitis may the disease be contracted from the patient? What is the relative standing of the meningococcus serum and the more recently introduced antitoxin in the treatment?

THOMAS J TUDOR M D Norton Va

ANSWER—It has been estimated that the average time for meningococci to remain in the nasopharynx is about two weeks. It is probably on this basis that some states have established a minimum quarantine period of fourteen days for patients with epidemic meningitis. Meningococcus carriers are also often found to be free from the organisms within approximately two weeks. However, persistent carriers are occasionally found who continue to harbor the organisms for a period of months.

Excellent results in the treatment of meningococcal meningitis may be secured with the use of either antimeningococcus serum or meningococcus antitoxin provided the remedy chosen is given intravenously in sufficiently large doses.

Some reports have suggested that fewer complications occur among antitoxin-treated cases than among patients who are treated with one of the standard serums.

## HISTAMINE IN BLOOD

To the Editor—Kindly suggest a good chemical method for the quantitative determination of histamine in blood. Please omit name and address.

Ph D South Carolina

ANSWER—There is no good chemical method for the quantitative determination of histamine in blood. The presence of histamine is determined by the Pauly diazo reaction. A relatively simple procedure is described by MacGregor and Thorpe in the *Biochemical Journal* 27 1394 (No 5) 1934. In this test 1 cc of the solution to be tested is mixed with 1 cc of 0.5 normal sodium carbonate and 2 cc of a fresh diazo reagent is added. The latter is prepared by mixing equal volumes of 0.125 per cent *p*-nitramine in 0.1 normal hydrochloric acid and 0.37 per cent sodium nitrite. A reddish yellow color forms which reaches its maximum intensity in one minute. This color can be compared with permanent standards in a colorimeter if a quantitative estimation is desired. The method will determine as little as 0.01 mg of histamine. Other substances, such as histidine and tyrosine, also give the test. Proteins and ammonium salts interfere. The removal of these substances is time consuming and requires considerable skill to avoid loss of histamine.

Histamine may also be isolated by electrolysis (MacGregor and Thorpe) and determined by physiologic assays. The fall in blood pressure of an etherized cat is compared with the drop produced by a known quantity of histamine.

## TOXICITY OF CARBON TETRACHLORIDE

To the Editor—What information do you have on the toxicity of carbon tetrachloride when used to remove adhesive tape from the skin? When used in this manner is this material toxic excluding the local irritating effect? Please omit name.

M D

ANSWER—Chemically pure carbon tetrachloride is much less toxic than the impure drug but still four times as toxic as chloroform. Severe intoxications have occurred after its use as a dry shampoo for extinguishing fires and for dry cleaning. It is suspected that the toxic effect of some shoe dyes has been due to carbon tetrachloride rather than to other chemicals that have been blamed. As with chloroform the toxic effect is cumulative, so that small amounts repeated oftener than once in ten days even though they produce no immediate symptoms of intoxication may eventually cause serious damage to the liver. Calcium deficiency increases susceptibility to these chlorine hydrocarbon compounds. If a nurse is occupied with



dressings for several hours a day, even though the room is well ventilated, the use of carbon tetrachloride had best be avoided. See Tomb, J W, and Helmy, M M. The Toxicity of Carbon Tetrachloride and Its Allied Halogen Compounds (*J Trop Med* 36 265 [Sept 15] 1933)

#### ABNORMAL WHITE BLOOD CELL COUNTS

*To the Editor*—Recently I attended a boy 16 years old who had lobar pneumonia and whose white blood count was so high that it could not be counted with the ordinary white pipet mixture. The red pipet was used and the dilution was 1:200 by sucking the blood up to 0.5 and the diluting fluid up to 101 and then the cells were so numerous that it was almost impossible to count them. In using the medium power and counting one of the larger corner squares on the counting chamber and multiplying this by 62 and then multiplying this result by 10 for the dilution, the number of white cells was 8,896,000. I have been doing blood work for years and know that my method was correct but I have never seen anything like this and can find nothing like it in the books. Please inform me in what manner I could have made a blood mixture so that the white cells could be counted and also what you think of this excessive count. Many counts were made and they were all alike. Kindly omit name.

M D Minnesota

*ANSWER*—White counts of such a degree have not been recorded in medical literature. Was the presence of such an abnormal count confirmed by means of a stained blood smear? One of the most common sources of error in obtaining such counts is the presence of mold in the diluting fluid. Mold grows rapidly in an acetic acid diluting fluid and may easily be mistaken for leukocytes under low power. This can be avoided by the use of fresh diluting fluid or by the addition of thymol or other preservatives to the diluting fluid. If any of the diluting fluid is left it would be advisable to examine it under the microscope to rule out the presence of mold. In counting blood with high white counts, the red counting pipet is used, a dilution of 1:200 being made. The average counts of the corner fields are then multiplied by 2,000.

#### POSSIBLE DEMENTIA PARALYTICA

*To the Editor*—A man aged 48 weighing 150 pounds (68 Kg.) a railroad brakeman has had unsteady gait and has had to watch his feet for some time. When seen Oct 6 1935 he had had a spell in which there were incoordination, illusions and more or less muttering speech. The blood pressure at that time was 140 systolic 78 diastolic. The knee jerk was absent and light reflex was absent but otherwise the physical examination gave apparently normal results. The blood Wassermann reaction was 4 plus no spinal test was made. I have proceeded on the assumption that the condition is a neurosyphilis and am giving tryparsamide 2 Gm intravenously at weekly intervals. Now my questions are: What should I give him as a rest from the present treatment and how long should I keep it up? The literature available to me gives such a number of drugs that I am at a loss to know which is best. Will you kindly tell me if I am correct so far and how to proceed further? Kindly omit name.

M D Ohio

*ANSWER*—The diagnosis of this case is not neurosyphilis in the general sense. The patient probably has dementia paralytica, for which there is a specific remedy. He should be given a course of artificial fevers by means of malarial inoculations following which tryparsamide should be used. If malaria is not available, enough typhoid vaccine should be used intravenously to raise the temperature to 104 or 105 F in twelve separate treatments separated by two or three days' rest.

#### IMMUNIZATION AGAINST DIPHTHERIA

*To the Editor*—At a recent medical meeting at Dallas Texas one of the distinguished and competent speakers suggested protecting children from diphtheria (by one of the three most used materials) at the age of 18 months to 2 years instead of the 6 months to 1 year suggested by all literature that I've read during the last three years. This was a distinct surprise to me as well as to many others with whom I discussed his advice. With the published reports in view it seems to me to be had teaching even if it should become necessary to reprotect.

J D Michie M D Childress Texas

*ANSWER*—Most infants at birth are not susceptible to diphtheria. This is because of antitoxin present in the blood received from the mother. As the end of the first year of life is approached this antitoxin, for the most part, has been eliminated.

It is believed that there is greater antigenic response when little or no immunity exists than when partial immunity is present. For this reason it seems best not to administer toxoid before the twelfth month of life.

Diphtheria is infrequent under 1 year of age. From 1 to 2 years it is not rare. Therefore, it would seem better to immunize at 1 year than to wait until later unless one can have absolute assurance that the child will not be exposed to diphtheria in the meantime.

#### SENSITIVITY TO LIGHT

*To the Editor*—I have a patient who is hypersensitive to the ultra violet. She gets blistered, nervous, swollen and very toxic from the slightest exposure to the sun. Two years ago she had an excessive treatment with a General Electric house lamp and the hypersensitivity has been the result. I understand that she develops hematomorphyrin which I have treated with intravenous sodium thiosulfate but she still burns as easily as before. I will appreciate it if you can give me some information for the treatment of such a case.

L S Besson Portland, Ore

*ANSWER*—The patient was no doubt sensitive to light before she was exposed to the house lamp. One type of sensitivity to light is caused by the presence of photodynamic substances in the blood or tissues. Of these substances hematomorphyrin is one.

The patient should be carefully protected from overexposure to light through the use of black or colored clothing, excluding blue, and through staying indoors on sunny days. The patients thrive better in a dark wet climate than in a dry sunny climate because of the fact that air moisture filters off some of the sun's rays at the violet end of the spectrum. The pathologic source of the hematomorphyrin production should be found if possible and removed. If this can be accomplished the patient should improve after a period of months.

#### SKIN INFECTIONS IN BLONDES

*To the Editor*—In an adequate series on my records, red haired people and light blondes show an unusual susceptibility to furuncles, carbuncles, respiratory infections and chronic hypochromic anemia. How do you account for this? Kindly omit name.

M D New Jersey

*ANSWER*—There are some reasons for a greater susceptibility to infections on the part of extreme blondes. Their skins are apt to be drier as well as of finer texture and thinner than ordinary skins. They are therefore more easily irritated by trauma as well as by sunlight or cold wind, and the slight inflammations thus inaugurated reduce the skin's resistance to infection. The dryness of the skin means that its protective layer of lipids is deficient, and this may coincide with a deficient power of producing resistance to infection.

One form of hypochromic anemia, chlorosis, is said to occur more often in blondes, but as the discussions of the etiology of the hypochromic anemias has become more thorough the reference to blondes has been dropped. Chlorosis has become a rarity, which cannot be said of blondes. No reference has been found to a greater tendency of blondes to respiratory diseases. The same can be said with reference to furuncles and carbuncles. It is up to the doctor to present his statistics.

#### PAIN IN LIMBS AFTER CEREBRAL THROMBOSIS

*To the Editor*—I have been bedfast since 1932 following a thrombosis which caused a paralysis of the left leg and arm. The pain has been almost unbearable. Blocking of the nerves gave me relief for a short time so I am looking for something to relieve me. I will appreciate any suggestions you may have to offer.

M D, Indiana

*ANSWER*—The description is too incomplete for a definite therapeutic suggestion. Assuming that the pain is in the paralyzed limbs and not due to constriction of peripheral vessels or to joint lesions, it is most likely due to involvement of the optic thalamus. If there is a real "thalamic syndrome" there should be some impairment of superficial and deep sensibility, especially in the distal parts, as well as some ataxia. However, if blocking of nerves gave sufficient temporary relief to suggest peripheral origin of the pain, one might consider such drastic procedures as chordotomy or sympathectomy. If the pain shows no tendency to decrease and resists reasonable doses of analgesic drugs, consultation with a neurologic surgeon would seem advisable.

#### SPINAL FLUID CELL COUNT IN MENINGITIS

*To the Editor*—I have had some dispute as to the cell count in the different types of meningitis and would appreciate your sending me the latest account with the nearest number prevalent in these different forms and upon what amount of fluid is this estimate made.

Doris Solomon RN New York

*ANSWER*—The nearest number of cells per cubic millimeter in cerebrospinal fluid in different types of meningitis is as follows: tuberculous meningitis, 150; purulent meningitis of any type, 2,500. One must remember, however, that in tuberculous meningitis the cell count may vary from 30 to 1,000 cells. Likewise the cell count in purulent meningitis may vary from 200 to 25,000 cells. As a rule, the earlier in the disease the lumbar puncture is done, the fewer cells the fluid contains.

One drop of cerebrospinal fluid suffices for a cell count.



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### Arizona January Report

Dr J H Patterson secretary Arizona State Board of Medical Examiners reports the written examination held in Phoenix Jan 7-8 1936 Eight candidates were examined 6 of whom passed and 2 failed Two physicians were licensed by reciprocity and 1 physician was licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Number Passed
University of Southern California School of Medicine	(1935)		1
University of Michigan Medical School	(1930)		1
Duke University School of Medicine	(1933)		1

University of Oklahoma School of Medicine	(1935)	1
Hahnemann Medical Col and Hosp of Philadelphia	(1934)	1
Baylor University College of Medicine	(1931)	1

School	FAILEO	Year Grad	Number Failed
University of Kansas School of Medicine	(1935)		1
University of Cincinnati College of Medicine	(1935)		1

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Chicago College of Medicine and Surgery	(1912)		Arkansas
Baylor University College of Medicine	(1933)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1935)		N B M Ex

## Book Notices

**The Diagnosis and Treatment of Diseases of the Peripheral Arteries** By Saul S Samuels A M M D Chief of the Clinic for Peripheral Arterial Diseases Fourth Division Bellevue Hospital New York Cloth Price \$3 50 Pp 260 with 51 illustrations New York Oxford University Press 1936

This book, by a surgeon, is concerned chiefly, as the author states in the preface, with treatment of diseases of the peripheral arteries. The author apparently did not intend that the volume should be a reference book, since many important contributions to the physiology, pathology and treatment of the diseases of the peripheral arteries are mentioned briefly or not at all and references in the text are not always included in the bibliography. The subject and author indexes are incomplete. The bibliography contains more references than are mentioned in the text. Raynaud's disease, erythromelalgia and arteriovenous fistula are dismissed with a few sentences, and nothing is said of the treatment of the last two mentioned conditions. Aneurysm and periarteritis nodosum are not mentioned. For these reasons the book cannot be said to be complete.

The author holds no brief for mechanical methods of diagnosis or evaluation of treatment except for the oscilometer, which is described in detail. He says that the skin thermometer "has furnished a playful apparatus to the dabbler in experimental therapy." Several students of arterial diseases have the same opinion regarding the oscilometer. The author appears to have the unique opinion that skin temperatures are of no value in determining changes in arterial circulation. He admits that the oscilometer is of no value in determining collateral circulation. Almost all physicians familiar with diseases of the peripheral arteries agree that determination of the skin temperatures under certain conditions is a valuable index of changes in the collateral circulation.

The chief value of the book is in the detailed presentation of the treatment of thrombo angitis obliterans and arteriosclerosis obliterans. Although exception might be taken to some of the statements regarding treatment which are clearly an exposition of the author's ideas, the results he reports are extremely good. The mainstays of treatment of thrombo angitis obliterans without ulceration or gangrene, according to the author, are absolute cessation of smoking, sitz baths, diathermy, postural exercises, intravenous injection of solutions of sodium chloride and intramuscular injections of tissue extracts. The author interdicts the use of warmed environmental air because of the danger of burns, but he does not mention commercially available appliances that obviate this possibility by thermostatic regulation of the temperature of the air and protection of the sources of the heat so that the extremities cannot come in contact with them. Since heat can be applied constantly by this means while the patient is in bed the appliances mentioned appear far superior to sitz baths, which the author recommends. He feels that contrast baths are dangerous but this is rather an unusual opinion. He believes that intermittent negative and positive pressure is attended with considerable danger but this opinion is directly opposite to that held by those who have used this method of treatment with reasonable care. The author does not favor intravenous injections of typhoid vaccine apparently because such injections may prove fatal. Other workers in this field have used this method of treatment with reasonable care in hundreds of cases without trouble. In considering sympathectomy the author says: "The fallacy of this form of treatment

remains in the fact that sponsors of these operations have placed too much emphasis on the vasomotor element of this disease." He seems to have overlooked the frequently repeated statement that sympathectomy is valuable only when vasospasm or incomplete vasodilatation can be demonstrated preoperatively. Diathermy is recommended without evidence that it increases circulation. It probably produces temporary vasodilatation which the author indicates is largely valueless when produced by other simpler methods. He states that the sitz bath is superior to immersion of an upper extremity in a hot bath for increasing circulation but he does not support his opinion with evidence. The author appears to have had much success with intravenous injections of solutions of sodium chloride, which he believes increase pulse amplitude and thus the collateral circulation, although it is obvious that an increase in collateral circulation is difficult to prove, since skin temperatures are not elevated by this treatment. His enthusiasm for this type of treatment is not well supported by experience in other medical centers.

When gangrene or ulceration occurs, the author recommends absolute rest in bed, cessation of smoking, intravenous injections of salt solutions, and application of antiseptic solutions wet dressings and anesthetic ointments, as indicated. Surgical conservatism is stressed. The author's ideas are minutely presented. One statement appears a bit emphatic: "It is no longer necessary to amputate a leg in thrombo-angitis obliterans because of impending gangrene as has heretofore been the practice." Many clinicians particularly interested in thrombo-angitis obliterans will be startled to know that amputation "has heretofore been the practice" for impending gangrene, but to those less experienced the statement is an emphatic and warranted denial of the necessity for performing amputation in such cases.

The author treats arteriosclerosis obliterans in much the same manner as he does thrombo-angitis obliterans except that when diabetes complicates occlusive arterial diseases attributable to arteriosclerosis, the presence of spreading infection necessitates amputation. The conservative use of amputation is again stressed as it is in the chapter on thrombo-angitis obliterans, but no figures are given. The low incidence of amputation in both thrombo-angitis obliterans and arteriosclerosis obliterans is remarkable but the author does not state the period of follow up.

The book is valuable for what it is—a clear exposition of the author's recommendations for treatment of thrombo-angitis obliterans and arteriosclerosis obliterans. It is unfortunate, perhaps, that many statements of vital importance are unsupported by evidence and that the author is frankly intolerant of or disbelieves observations made by others experienced in the treatment of vascular diseases.

**Die Hautkrankheiten. Ein Buch für Ärzte und Studierende.** Von Dr. Richard Rohrbach. Facharzt für Hautkrankheiten in Bremen. Paper. Price 20 marks. Pp. 393. Dresden & Leipzig: Theodor Steinkopff, 1935.

Rohrbach presents a book for physicians and students in which skin diseases are grouped on biologic rather than morphologic lines. The book is composed of a general part in which the various subjects are handled in much the same manner in which they are treated in the American textbooks, and a special part, divided into conditions of known etiology, under which is included the infectious skin diseases embracing a discussion of the pyoderms, fungous and parasitic infections and other infectious conditions of the skin and hereditary skin diseases in which the significance of heredity in dermatology is discussed. The latter is grouped into dominant and recessive skin diseases. Under dominant the author classifies epidermolysis bullosa hereditaria, ichthyosis vulgaris, ichthyosis congenita universalis, neurofibromatosis, Darier's disease, keratoma palmare et plantare hereditarium, acne vulgaris, prokeratosis, vitiligo and rosacea. Xeroderma pigmentosum is the only condition classed as recessive. The section on allergic skin diseases embraces urticaria, eczema (including infantile eczema), angioneurotic edema, prurigo, Hebra strophulus and serum sickness, and endocrine diseases of the skin under which are discussed Addison's disease, Simmonds' disease, impetigo herpetiformis, dermatitis dysmenorrhoeica, myxedema and acanthosis nigricans. Avitaminosis or deficiency diseases under which scurvy is grouped,

is further subdivided with hydroa vacciniforme and pellagra, grouped under the heading of avitaminosis with increased light sensitivity. Diseases associated with disorders of metabolism are discussed and include the entities psoriasis, xanthomatosis, amyloidosis, neurodermite, scleroderma, pemphigus, Dühring's disease, ulcus cruris and pruritus. The discussion of skin diseases produced by physical agents is presented also, as a subheading in this section the action of x-rays on healthy and diseased skin is discussed, and the last part deals with skin diseases produced by chemical agents and includes the drug eruptions or toxidermas as well as external irritant or occupational dermatoses.

Under the general heading of conditions of unknown etiology there is first discussed the abnormal conditions of the skin such as the atrophies and dystrophies. Under the latter is grouped pseudo-xanthoma elasticum, livedo racemosa, seborrheas, parapsoriasis, diseases of the hair, diseases of the nails, and erythrodermias. Under chronic granulomas is included a discussion of lupus erythematosus, lymphogranulomatosis, mycosis fungoides, leukemias, granuloma pediculatum, molluscum contagiosum, lichen planus, and kraurosis vulvae. Neoplasms are subdivided into benign new growths of the skin, under which is included nevi, fibroma and keloids, lipomas, myomas, syringocystadenomas, adenoma sebaceum, warts, blue nevi, urticaria pigmentosa and cystic tumors. The second part deals with malignant growths, including a discussion of sarcomas of the skin, melanoma, Bowen's precancerous dermatosis, and skin cancer. Special discussions treat the new advances in the study of allergy, five pages of text is devoted to the discussion of vitamins and four pages to hormones.

One notes a variation in the manner of classification of skin diseases as compared to that seen in the conventional American textbooks on dermatology. An attempt is made to group and discuss skin diseases as reactions of the skin as an organ, locally, to disturbances in the whole body. There are no illustrations to supplement the descriptions in the text. This is a drawback in a book intended for students and physicians who are not experienced in the diagnosis of skin diseases. The discussion of syphilis and the acute exanthemas, usually included in American textbooks of dermatology, is omitted.

The book gives a different point of view in the classification of skin diseases although controversy may exist over the grouping of some of the cutaneous entities as given, it is a work deserving of a place in the library of those interested in this branch of medicine.

**Psycho Analysis for Teachers and Parents. Introductory Lectures** By Anna Freud. Translated by Barbara Low. Cloth. Price \$1.75. Pp. 117. New York: Emerson Books Inc. 1935.

This book contains a series of four lectures delivered by Anna Freud to parents and school teachers in Vienna. It is a simple and authentic presentation of those most fundamental concepts of psychoanalysis which have a specific interest for parents and educators. The aim of the lectures is not only to give the audience an abstract view of the subject but to bring it into relation with the actual problems with which parents and educators have to cope. The four lectures are on (1) infantile amnesia and the Oedipus complex, (2) the infantile instinct life, (3) the latency period and (4) the relation between psychoanalysis and pedagogy.

In the first lecture the author emphasizes that the 6 year old child with whom the teacher has to deal is by no means totally flexible but already constitutes a well defined little personality. The importance of the first five or six years of a child's development is stressed, and the amnesia covering these first years is explained. The child's emotional conflicts in relation to the siblings and parents are vividly and convincingly described as those events which specifically become the objects of the infantile amnesia but which at the same time have a dynamic effect on the child's later behavior and personality development.

The second lecture undertakes the difficult task of giving a popular description of the vast observational material regarding the first manifestations of the child's instinctual life and attempts to explain them as the different phases of an evolutionary process. The pregenital manifestations of sexuality as well as the early manifestations of genital impulses in children, a field that is difficult to discuss without provoking strong emotionally conditioned objections, are convincingly described.

The third lecture, devoted to the latency period, mentions the interesting fact that men of the present civilization have intuitively chosen the right time in which teaching of children can most advantageously start. This is the time around the sixth year in which the first onslaught of the sexual instinct is abated and intellectual curiosity takes the place of the earlier and cruder manifestations of the instinctual life. The author in a brief and immediate fashion describes the formation during this period of the restrictive forces in the child's ego, the absorption by the child of the educational principles imparted to him by the parents in the form of the development of the superego.

In the last lecture the author turns to practical pedagogic problems and describes the two types of maladjustments in children: (1) the group of inhibited children, in which over-severe restrictions lead to the development of an inhibited personality and (2) the neglected youth which does not learn gradually the necessary restrictions of the instinctual life and becomes negativistic and refractory against the educational attempts during the latency period and later. The fact that children between the sixth year and puberty as a rule become less spontaneous and more dull than they were in their earlier years is explained by the author as the price which we have to pay for becoming civilized and domesticated. To minimize this dulling effect of restrictions and repressions is an important task of education which at the same time has to avoid the other danger of giving unrestricted full rein to the manifestations of the child's original instinctual needs which would make him later unsocial.

The author summarizes the benefits of the knowledge of psychoanalysis for teachers. Though psychoanalysis is unable as yet to formulate simple and practical pedagogic rules its knowledge has significance for the teacher because (1) it offers a criticism of existing educational methods, (2) it extends the teacher's knowledge of human beings and his understanding of the complicated relationship between the child and the educator, and (3) as a method of therapeutic treatment analysis of children is able to repair injuries that are inflicted on the child during the process of education.

The author ends her presentation with an instructive example of a teacher, showing how the emotional conflicts of this educator affected her relation to the child entrusted to her. This is the story of a governess who became very successful in influencing the development of a young boy who was retarded and dull and who played a subordinate part in the family in contrast to his two gifted and attractive brothers. Under the influence of her loving attention this boy after a while became the most valued member of the family circle but as soon as this success had been achieved the governess's relation to the boy changed, she had difficulties with him and finally had to give up his education. The explanation was that the governess herself in childhood was a neglected child and thus could identify herself with this neglected boy. As soon as he became successful he became associated in her mind with her successful siblings, and her reaction toward him became destructive. The author emphasizes that educators should know their own emotional weak spots in order to handle correctly the children in their charge.

**New Principles of Anti Rabic Treatment and Rabies Statistics. A Statistical and Experimental Study.** By Maria J. Van Stockum. Volume I. Paper. Price 4.80 guilders. Pp. 204. The Hague: Martinus Nijhoff, 1935.

This volume, by Maria J. Van Stockum of the Pasteur Institute Bandung, Netherlands East Indies, is comprehensive and in two parts. Part I, on comparative rabies statistics, has three chapters on a new method of analysis of rabies statistics: rabies statistics of natives in the Netherlands East Indies 1895-1932 and results obtained in other countries with the Hogyes method with rabbit fixed virus and with some methods with fixed virus killed or attenuated by means other than by drying. Part II is devoted to treatment accidents with chapter 5 on the etiology and diagnosis of treatment accidents and on the prevalence of treatment accidents in those treated with the Pasteur and Hogyes methods.

The interest aroused by the title on the possibility of new principles of antirabic treatment is not sustained for this portion of the title applies to the principles for handling rabies

statistics. The author's treatment of the statistical data is worthy of detailed study. Aside from a realization of their actual worth much valuable information is learned of the author's knowledge of the many-sided rabies problems, which is profoundest in statistics and rather limited on the technical or research phase. No planned controlled experimental testing is mentioned. The author's attitude is rather critical and seemingly unaware of several established procedures, as for example the continued and increasing use of phenolized rabies vaccine. He states that phenolized vaccines can no longer be advocated for immunizing purposes. Furthermore, the statement 'The results of immunization as a rule largely depend on the species supplying the fixed virus in relation to the species to be immunized' is unsupported by experiment and general experience. Rabbit fixed rabies virus readily immunizes man and protection tests are recorded that dogs injected will withstand an infective dose of street virus.

The importance of early rabies vaccine treatment is well stressed, particularly for those victims in whom the period of incubation may be within thirty days but the author seems still to be of the opinion that something worth while can be accomplished by adding doses to the treatment particularly in cases with incubation periods of half or less than thirty days. Evidence exists that protection largely depends on the first few doses of the treatment. The use of solution of formaldehyde in the conversion of a toxin to a toxoid is stressed as a reason for replacing a phenolized with a formaldehydized rabies vaccine. No information is given about the prolonged effect of formaldehyde on rabies virus which is undoubtedly made noninfective in twenty-four hours at 37°C. Unless the formaldehyde is removed it will affect the antigenic properties of the vaccine much quicker and more completely than phenol.

The two sets of conclusions are comprehensive and fully reveal the coverage of the volume. Those having to do with treatment accidents are not supported by informative data.

**Teoría de los neoplasmas.** Por S. Santamaría. Paper. Pp. 163 with 13 illustrations. Madrid: J. Pueyo Imp., 1935.

The author proposes a new hypothesis for cancer, believing that it occurs only in species which reproduce themselves by amphimixis and not in those in which reproduction is parthenogenic, thus placing the responsibility on the combination of pre-existing hereditary elements. A large portion of the discussion is based on a survey of the literature, chiefly drawn from paleontology and embryology. One illustration even is a reproduction of the famous buffalo from the walls of the caves of Altamira, presumably done some 30,000 years ago. Just how profitable such theoretical studies may be depends on the possibility of an experimental attack and this does not seem feasible from the author's presentation. A bibliography of thirty-four references is appended.

**Textbook of Nursing Technique.** By Irene V. Kelley, R.N., B.S., Director of Nursing Education, St. Alexis Hospital School of Nursing, Cleveland. Third edition. Cloth. Price \$2.50. Pp. 425 with 79 illustrations. Philadelphia and London: W. B. Saunders Company, 1935.

This is an excellent textbook of nursing technique or procedure. At the end of each section is the usual questionnaire for review and practical exercises. The work is systematically arranged and graded through the different periods of nursing training and study, the presentation of the subject matter is simple, complete and practical, numerous charts, tables and illustrations accompany the text. This work should prove valuable for all engaged in the study of nursing. Most physicians could read it with profit.

**L'année thérapeutique. Médications et procédés nouveaux.** Par A. Ravina. Neuvième année 1934. Paper. Price 18 francs. 1 p. 191. Paris: Masson & Co., 1935.

This is the ninth annual review of newer therapeutic procedures published in this series. Ravina endeavors to cover in this little volume the therapeutic progress that has occurred during the year not only in France but also in other countries. The topics are classified under three headings: (1) the treatment of diseases and symptoms; (2) new techniques and apparatus; (3) new remedies. As some of our annual reviews published in the English language may be somewhat deficient in adequate presentation of progress as reported in French medical literature this annual is always welcome.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts Appendicitis Aggravated by Trauma**—An automobile driven by the deceased employee struck an elevation at a street intersection and skidded into a ditch, jarring and jolting the deceased. At the time of the accident, the deceased made no complaint of injury but about thirty minutes later, according to the testimony, he did complain that he had hurt his abdomen. Two days later an abdominal pain in the region of his stomach developed and on the sixth day after the accident an appendectomy was performed and a ruptured gangrenous appendix removed. Peritonitis and intestinal obstruction developed, resulting in the death of the employee three days later. The claimant instituted proceedings under the workmen's compensation act. The compensation commissioner disallowed compensation and, from a judgment by the trial court upholding the commissioner, the claimant appealed to the Supreme Court of Nebraska.

Prior to the accident, the deceased employee had had attacks of appendicitis. The claimant contended that the deceased sustained abdominal injuries when he was thrown against the steering wheel and that a preexisting chronic appendicitis was thereby aggravated. There was evidence that the preexisting abdominal condition might and probably would have been lighted up by the striking of the deceased's abdomen against the steering wheel. But, said the Supreme Court, there was no evidence that the deceased was thrown against the steering wheel at the time of the accident or otherwise sustained any injury to his abdomen. The complaint alleged to have been made by the deceased, thirty minutes after the accident, that he had hurt his abdomen, was clearly, in the opinion of the court, a narrative of a past transaction or event and was inadmissible in evidence. It was not a spontaneous or involuntary statement made during the happening of the event in proof of which it was offered as evidence. The declaration was, in other words, not a part of the *res gestae*. The most that the evidence showed, therefore, was the possibility or probability that the alleged injury could have happened at the time and place alleged. Awards of compensation cannot be based on possibility, probability, speculation or conjecture. The Supreme Court therefore affirmed the judgment of the trial court denying compensation—*Milton v City of Gordon (Neb)*, 263 N W 208.

**Malpractice Insurance Failure to Notify Insurance Company of Claim Filed Thirteen Years After Treatment**—The Aetna Life Insurance Company issued to Dr Willis Walley, June 20, 1919, an insurance policy, to continue in force for one year, whereby it agreed to indemnify him against loss arising out of any claim based on malpractice. By the policy the physician was required to give immediate notice to the company of any claim made against him for damages. In January 1920 the physician operated on a patient and thirteen years later, in March 1933, he received notice from the patient's attorney making claim for damages based on the alleged failure to remove a drainage tube inserted during the course of the operation in 1920. The physician denied liability and suit was filed Nov 28 1933. The physician had not kept his insurance policy and did not remember by what insurance company it had been issued. He made no effort to ascertain the name of the company until after suit was actually filed. He did not learn the name of the company until February 1934 at which time the suit was at trial. The company then agreed to appear and defend the suit, provided the physician would agree that the insurance company should not be held to have waived its right to complain of the physician's delay in notifying it of the claim. The physician declined to do so, and the attorneys for the insurance company refused to defend the suit. Judgment was thereafter given for the patient. In the present suit, the physician sought to recover from the insurance company the amount paid by him under this judgment, and the expense incurred in defending the suit. The trial court gave judgment

for the physician, and the insurance company appealed to the Supreme Court of Mississippi, division A.

The notice requirements in the insurance policy, said the court, conferred a valuable right on the company, the purpose of which was to enable it to investigate a claim against the insured covered by the policy, to decide whether the claim should be settled without litigation, and, if not, to prepare its defense. No such timely notice was given in the present case. The physician contended, however, that it was impossible for him to have given the notice earlier and that therefore he was excused from so doing. The impossibility, observed the court, did not arise because of the nature of the act to be performed, but wholly because of the inability of the physician himself to perform it. The failure of the physician to keep his policy occurred through his own fault. His delay, from March, when he first received notice of the claim, to December, shortly after suit was filed, to make any attempt to ascertain the name of the insurer constituted, in the opinion of the court, negligence. The Supreme Court, therefore, reversed the judgment of the trial court and gave judgment for the insurance company—*Aetna Life Ins Co v Walley (Miss)*, 164 So 16.

## Society Proceedings

### COMING MEETINGS

American Association for the Study of Gonorrhea June 8 10 Dr W Blair Mosser 133 Biddle St Kane Pa Corresponding Secretary  
American Association for the Study of Neoplastic Diseases Baltimore June 11 13 Dr Eugene R Whitmore 2139 Womington Ave N W Washington D C Secretary  
American Bronchoscopic Society Detroit May 27 Dr Lyman Richards 319 Longwood Ave Boston Secretary  
American Dermatological Association Swampscott Mass June 4 6 Dr Fred D Weidman Medical Laboratories University of Pennsylvania Philadelphia Secretary  
American Gynecological Society Asheville N J May 25 27 Dr Otto H Schwarz 630 S Kingshighway Blvd St Louis Secretary  
American Laryngological Association Detroit May 25 27 Dr James A Babbitt 1912 Spruce St Philadelphia Secretary  
American Laryngological Rhinological and Otolological Society Denver May 18 20 Dr C Stewart Nash 708 Medical Arts Building Rochester N Y Acting Secretary  
American Neurological Association Atlantic City N J June 1 3 Dr Henry A Riley 117 East 72d St New York Secretary  
American Ophthalmological Society Hot Springs Va June 1 3 Dr J Milton Griscom 255 South 17th St Philadelphia Secretary  
American Orthopedic Association Milwaukee May 18 21 Dr Ralph K Ghormley Mayo Clinic Rochester, Minn Secretary  
American Otolological Society Detroit May 28 29 Dr Thomas J Harris 104 E 40th St New York Secretary  
American Pediatric Society Bolton Landing N Y June 11 13 Dr Hugh McCulloch 325 North Euclid Ave St Louis Secretary  
American Physiotherapy Association Los Angeles June 28 July 2 Miss Jefferson I Brown Tichenor Hospital School Long Beach Calif Secretary  
American Society for the Hard of Hearing Boston May 26 30 Miss Betty C Wright 1537 35th St N W Washington D C Secretary  
American Urological Association Boston May 18 21 Dr Clyde L Deming 789 Howard Ave New Haven Conn Secretary  
California Medical Association Coronado May 25 28 Dr F C Warnshuis 450 Sutter St, San Francisco Secretary  
Conference of State and Provincial Health Authorities of North America Vancouver B C June 22 23 Dr A J Chesley State Department of Health St Paul Minn Secretary  
Connecticut State Medical Society Hartford May 20 21 Dr Charles W Comfort Jr 27 Elm Street New Haven Secretary  
Illinois State Medical Society Springfield May 19 21 Dr Harold M Camp 202 Lahl Building Monmouth Secretary  
Maine Medical Association Rangeley June 21 23 Miss Rebekah Gardner 22 Arsenal St Portland Secretary  
Massachusetts Medical Society Springfield June 8 10 Dr Alexander S Begg 8 The Fenway Boston Secretary  
Medical Library Association St Paul June 22 24 Miss Janet Doe 2 E 103d St New York Secretary  
Montana Medical Association of Billings July 8 9 Dr E G Balsam 208½ North Broadway Billings Secretary  
New Hampshire Medical Society Manchester May 26 27 Dr Carleton R Metcalf 5 S State St Concord Secretary  
New Jersey Medical Society of Atlantic City June 2 4 Dr J B Morrison 66 Milford Ave Newark Secretary  
North Dakota State Medical Association Jamestown, May 17 19 Dr Albert W Skelsey 20½ Broadway Fargo Secretary  
Pacific Northwest Medical Association Portland Ore, July 7 10 Dr C W Countryman 407 Riverside Avenue Spokane Wash Executive Secretary  
Rhode Island Medical Society Providence June 3 4 Dr J W Leach 167 Angell St Providence Secretary  
Society of Surgeons of New Jersey Orange May 27 Dr Walter B Mount 21 Plymouth St Montclair Secretary  
Texas State Medical Association of Houston May 25 28 Dr Holman Taylor 1404 W El Paso St Fort Worth Secretary  
West Virginia State Medical Association Fairmont June 8 10 Mr Joe W Savage Public Library Bldg Charleston Executive Secretary

## Current Medical Literature

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American J Obstetrics and Gynecology, St Louis

31 369 548 (March) 1936

- Primary Squamous Cell Carcinoma in Body of Uterus G Gellhorn St Louis—p 372  
Puerperal Infection Due to Anaerobic Streptococci O H Schwarz and T K Brown St Louis—p 379  
Pelvic Inclination A Y P Garnett and J B Jacobs Washington D C—p 388  
Occipitoposterior Positions S A Cosgrove Jersey City N J—p 402  
Outpatient Obstetrics Review of Sixty Eight Hundred and Sixty Three Cases H Buxbaum Chicago—p 409  
Occurrence and Significance of Decidual Changes of Endometrium in Extra Uterine Pregnancy R S Siddall Detroit—p 420  
Study of Four Thousand Patients Admitted for Contraceptive Advice and Treatment Ruth A Rohshaw Cleveland—p 426  
Statistical Studies on Puerperal Infection I Some Factors Influencing Incidence of Puerperal Infection C H Peckham Baltimore—p 435  
Influence of Mental Attitudes in Childbearing F W Dersheimer New York—p 444  
Record of Twenty Six Cases of Rupture of Uterus C P Sheldon Albany N Y—p 455  
Vascular Aspect of Eclampsia F C Irving Boston—p 466  
Injection Treatment of Varicose Veins in Pregnancy C Z Nicholas Santa Barbara Calif—p 476  
The Heart in Uterine Myoma M S Jacobs Philadelphia—p 483  
Abscess of Ovary W T Black Memphis Tenn—p 487  
Pelvic Measurements in White and Colored Female and Their Significance in Childbirth Study of Fourteen Hundred Cases W T Pride Memphis Tenn—p 492  
Effect of Excessive Cigaret Smoking on Maternal Health A M Campbell Grand Rapids Mich—p 502  
Use of Corpus Luteum in Treatment of Dysmenorrhea R E Campbell and F L Hiss Madison Wis—p 508  
Comparison of Different Methods for Measuring Renal Function During Pregnancy R H Freyberg J L Gillard and F Ganesbauer Ann Arbor Mich—p 511  
Sodium Amytal and Morphine in Labor I Daichman and M M Shur Brooklyn—p 515  
Effects of Radiation on Human Offspring Present Day Views J R Miller Hartford Conn J A Corscaden and J A Harrar New York—p 518  
Pregnancy Following Radical Resection of Rectum for Carcinoma W T Pommerenke Rochester N Y—p 522  
Report of Twenty Two Iatzo Cesarean Sections with Modification in Technique H B Perrins New Haven Conn—p 525  
Large Intramural Cysts of Uterus Report of Case E C Hambley Durham N C—p 530  
Cervical Carcinoma in Girl of Sixteen Years D B Ludwig Pitts burgh—p 536  
Chorioma (Chorio Adenoma Type) I J Mundell Washington D C—p 539

**Outpatient Obstetrics.**—Buxbaum reports on 6863 cases in which 6537 deliveries occurred in poorly furnished insanitary homes during a period of two years. The operative incidence was about 4 per cent of which 74 per cent were forceps deliveries. There were forty-five cesarean sections an incidence of 0.65 per cent. The fetal mortality was 1.6 per cent 104 deaths. The fetal mortality for forceps deliveries was 5.2 per cent, versions 34.6 per cent prolapsed cord 29 per cent rupture of the uterus 100 per cent breech presentation 7.7 per cent and cesarean section 20 per cent. Twelve mothers died three in their own homes a maternal mortality of 0.17 per cent. The author states that conservative patient management of obstetric cases, especially when delivered in the home is undoubtedly the prime factor in keeping down in already unnecessarily high fetal and maternal mortality. While it is desirable to get a live healthy child one is never justified in doing this at any moderate risk to the mother.

**Vascular Aspect of Eclampsia.**—Irving arrives at the following conclusions from a study of the pathology in pre-eclampsia and eclampsia. 1 There is considerable evidence that the disease is vascular in nature and may best be explained on the basis of arteriolar spasm. 2 Hypertension is probably a protective mechanism. Any measures directed solely toward a reduction of blood pressure are productive of little benefit. 3 Edema may cause considerable harm and active steps should

be taken to bring about its removal. Free watery catharsis, produced by large oral doses of magnesium sulfate, is an effective method of reducing anasarca. Diuretics acting directly on the glomerular endothelium and epithelium are contraindicated, since owing to the nature of the lesion of the kidney they cannot be employed on a rational basis. The intravenous use of concentrated dextrose solution is sometimes useful in stimulating the secretion of the kidney when recovery is under way, but it is often of little benefit in the presence of complete, or almost complete, urinary suppression. 4 The best treatment for eclampsia is prophylaxis. For this reason each case of preeclampsia should be carefully studied from the aspect of abnormal physiology and delivery effected when improvement under treatment fails to take place.

**Effect of Excessive Cigaret Smoking on Maternal Health.**—Campbell submitted a number of questionnaires asking whether the smoking and inhalation of twenty-five or more cigarettes daily have an unfavorable effect on maternal health. An analysis of the seventy-five replies received indicates that a cross-section opinion held by leading obstetricians of this country is unfavorable to smoking among expectant mothers, except in moderation. The author believes also that in many cases there is a strong susceptibility to nicotine, and that complete abstinence is in many cases highly desirable and even necessary as one of the safeguards to maternal health. He has observed women who are not excessive smokers in whom the nervous digestive, respiratory and circulatory systems have been noticeably affected. He believes that the indulgence of so many American women in the use of barbiturates and other sedatives for insomnia is frequently associated with excessive smoking. So far as the clinical symptoms are concerned which arise from excessive smoking or from susceptibility to nicotine, nearly all the important functions of the body are to some extent disturbed by it and physicians should endeavor to evaluate properly its influence and specifically advise each patient who insists on smoking according to her sensitivity to it. Absorption of nicotine in some way produces definite histologic changes in the ovaries of rats, mice and guinea-pigs which results in some instances in sterility and unhealthy offspring. The unfavorable effects of excessive cigarette smoking on maternal health are not sufficiently recognized and are of enough importance to demand a closer observation of clinical manifestations and a continuation of experimental work.

### American Journal of Physiology, Baltimore

115 1248 (March 1) 1936 Partial Index

- Blood Sugar Inorganic Phosphorus and Phosphatase Activity Following Intravenous Injection of Calcium Salts A Cantarow J T Brundage and E L House Philadelphia—p 1  
Improved Gastric Test Meal and Study of Secretory Curve in Whole Stomach Pouches and in Normal Intact Stomach C M Wilhelm F T O'Brien and F C Hill Omaha—p 5  
Rate of Secretion of Bile H Koster A Shapiro and H Lerner Brooklyn—p 23  
Phenolsulfonphthalein Renal Function Test in Dogs D A Collins Minneapolis—p 27  
Excitatory Process in Mammary Ventricle Jane Sands Robb Syracuse N Y and R C Robb Rochester N Y—p 43  
Hydremia as Factor in Anemia of Pregnancy H Feldman Evelyn C Van Dong H Steenbock and E I Schneiders Madison Wis—p 69  
Coronary Blood Flow in Aortic Stenosis in Aortic Insufficiency and in Arteriovenous Fistula H D Green Cleveland—p 94  
Effect of Atropine and Pilocarpine on Emptying Time of Human Stomach R C Herrin Madison Wis—p 104  
Changes in Tissue Metabolism in Fetal Diets and Spayed Rat Victor Dorothy H Andler and Margaret R Prest New York—p 121  
Effect of Estrus and Spaying on Pituitary Metabolism J Victor and Dorothy H Andler New York—p 140  
Diet in Relation to Reproduction and Rearing of Young J F Fester and A F Nelson Ames Iowa—p 147  
Individuality of Breathing R C Cell Ann Arbor Mich—p 168  
Automotor Responses of Mucosa of Upper Respiratory Tract to Thermal Stimuli I C Spiegan Chicago—p 181  
Effect of Radiation on Excitability of Smooth Muscle S A Cutman and D T Wilber Ithaca N Y—p 194  
Sterility in Rabbits Produced by Injections of Estrone and Related Compounds C Lincoln and R F Kirsch Cambridge Mass—p 219  
Absorption of Water from Small Intestine at Various Degrees of Anoxemia J J Van Dierckx A David and D H Touch Morgan town Va—p 239

**Hydremia as Factor in Anemia of Pregnancy.**—According to Feldman and his associates determinations on the blood of normal pregnant women revealed an increase in water con-



tent with a concomitant fall in hemoglobin, cell volume and refractive index. As these data are similar to those previously obtained with the pregnant rat it was considered possible that the hydremic condition might be general in the pregnant state. The dairy cow however proved to be an exception. Apparently in this species physiologic adjustments to changes in fluid secretion as well as to pregnancy are more easily made.

**Effect of Atropine and Pilocarpine on Emptying Time of Stomach**—Herrin studied the effect of atropine and pilocarpine on the gastric emptying time in thirteen healthy persons. With one exception these were first and second year medical students. He observed that atropine increases both initial emptying and final emptying times of the normal human stomach. The lengthening of final emptying time is due to two delays in evacuation. One occurs during the first half hour after the meal and the other occurs near the end when the volume of gastric contents has become greatly reduced. These observations are interpreted as a demonstration of the importance of the vagus nerve in maintaining the gastric tonus and peristalsis necessary for a normal emptying of the human stomach. Pilocarpine in most of the subjects favored initial emptying. However, in ten of the thirteen subjects final emptying time was increased from a slight to a moderate degree. For about two thirds of the emptying, the rate with pilocarpine is as rapid as the normal or faster. The delay in evacuation comes only near the end. The favorable effect of pilocarpine on gastric evacuation demonstrates the value of strong gastric tonus and peristalsis in the mechanism of emptying and how these two factors can be heightened by vagal activity. The delay in the completion of evacuation may well be considered evidence of Thomas's enterogastric reflex. Atropine increased the initial emptying time in six of the eight subjects taking farina from 60 to 436 per cent and in three of the five subjects taking a gelatin meal from 57 to 222 per cent. The final emptying time was increased from 40 to 154 per cent in the eight subjects ingesting farina and from 4 to 95 per cent in the five subjects taking the gelatin meal before the injection of atropine. Pilocarpine decreased the initial emptying time in five of the eight subjects taking farina from 11 to 70 per cent had no effect in one and markedly increased it in another. It shortened the initial emptying from 16 to 25 per cent in two of the five subjects taking gelatin. Pilocarpine increased the final emptying time in ten of the thirteen subjects from 5 to 71 per cent and shortened it immaterially in the others.

### American Journal of Public Health, New York

26 219-320 (March) 1936

- Typhoid Vaccine Studies. Investigation of Virulence and Antigenic Properties of Selected Strains of Typhoid Organism. The Laboratory Staff Army Medical School Under Supervision of I F Sile. Washington D C—p 219
- Plumbing Hazard Survey of Pasteurization Plants. W S Johnson. St. Louis—p 229
- Eating Utensil Sanitation. J G Cumming and A E Young. Washington D C—p 237
- Biology of the Oyster in Relation to Sanitation. P S Calver. Washington D C—p 245
- \*Rapid Slide Test for Serologic Diagnosis of Typhoid and Paratyphoid Fevers. H Welch and F L Mickle. Hartford Conn—p 248
- Epidemic of Dengue. H Hanson. Jacksonville Fla—p 256
- Detection and Significance of Escherichia Coli in Commercial Fish and Fillets. F P Griffiths and J E Fuller. Amherst Mass—p 259
- Can the Health Officer Safely Utilize Prophylactic Immunization as the Sole Means to Control Canine Rabies? H W Schoening. Washington D C—p 265
- Encephalitis of the St. Louis Type in Illinois. W H Tucker. Springfield Ill—p 268
- Dust Determinations. E C Barnes. East Pittsburgh Pa—p 274
- Fetal and Neonatal Mortality with Recommendations for Reduction. F L Adair and Edith L Potter. Chicago—p 281

**Rapid Slide Test for Serologic Diagnosis of Typhoid and Paratyphoid**—Welch and Mickle discuss a rapid slide test for the diagnosis of typhoid and paratyphoid. Concentrated antigens with undiluted serums are used. The test follows in general the Huddleson technic for the diagnosis of Brucella infection, the efficiency and accuracy of which have been demonstrated. The slide test for the diagnosis of typhoid and paratyphoid makes use of four antigens: an alcohol treated Eberthella typhosa O, Eberthella typhosa H, Salmonella paratyphi and Salmonella Schottmuelleri. The antigens are about the consistency of thin cream and are prepared by growing large

quantities of organisms on agar in Blake bottles and washing the growth off with concentrated saline solution with formaldehyde. All antigens are standardized by titration against known positive and negative serums, the titers of which have been previously determined by a standard tube test technic. The test takes approximately four minutes to complete. The rapidity and ease with which it may be carried out in a routine manner seemed to the authors to be an important factor in public health laboratories when speed and accuracy in reporting results to physicians are necessary. In hospitals when an early exclusion of typhoid in certain undiagnosed cases is often important the rapid slide test should be invaluable. The results obtained in a study of 1,100 serums indicate that the slide test is at least as sensitive and specific as the tube tests with which it was compared.

### Annals of Surgery, Philadelphia

103 321-480 (March) 1936

- Liver Stones. I G Ruffanov. Moscow U S S R. translated by A J Walscheid. New York—p 321
- Congenitally Shortened Esophagus (Thoracic Stomach). Report of Two Cases Found Post Mortem. F J L Blasingame. Galveston Texas—p 337
- \*Extension of Gastric Carcinoma into Duodenum. B Castleman. Boston—p 348
- Gastric and Duodenal Perforation During Hospital Treatment. C F Vale and D A Cameron. Detroit—p 353
- \*Factors in Mortality of Acute Appendicitis. A C Pattison. Iowa City—p 362
- Treatment of Gaseous Distention of Intestine by Inhalation of Ninety Five Per Cent Oxygen. Description of an Apparatus for Clinical Administration of High Oxygen Mixtures. J Fine. B M Banks. J B Sears and L Hermanson. Boston—p 375
- Cyst of Wolffian Origin with Aplasia of Kidney and Ureter. Hydro-nephrosis and Undescended Testicle. D R Hardeman and A De Groat. Little Rock Ark—p 388
- Renal Lipomatosis. A H Peacock and A Balle. Seattle—p 395
- True Hermaphroditism. Report of Case with Necropsy. H J Wurthen and Pauline Williams. Richmond Va—p 402
- Primary Carcinoma of Extremities. E M Bick. New York—p 410
- Electrosurgery in Advanced Carcinoma. T de Cholnoky. New York—p 415
- Leptothricosis. Pulmonary Abscess and Fatal Pyemia. P G McLellan. Hartford Conn—p 422
- Fractures of Jaw and Allied Traumatic Lesions of Facial Structures. H H Weisengreen and W N Levin. Fresno Calif—p 428
- Nicola's Operation for Recurrent Dislocation of Shoulder. D P Willard. Philadelphia—p 438
- Volkmann's Ischemic Contracture in Hemophilia. R L Hill. Honolulu. T H and B Brooks. Nashville Tenn—p 444

**Extension of Gastric Carcinoma into Duodenum**—Castleman states that from 1900 to 1931 at the Massachusetts General Hospital there were sixty-five necropsies in cases of carcinoma involving the pylorus. In many of these cases sections from the tumor alone, without duodenum were preserved. In six of these cases the growth had invaded the duodenum. During the years 1919 to 1934 inclusive the laboratory received 134 surgical specimens of stomach resected for pyloric carcinoma. In some specimens sections of the duodenum were not preserved but making no allowance for these fifteen specimens showed duodenal extension. In 1934, when special attention was given to this subject there were seven out of twenty-eight surgical cases that showed duodenal extension. This high percentage emphasizes the necessity for the pathologist to take sections of the duodenum in all cases of prepyloric carcinoma. The six cases from the necropsy group and the fifteen from the surgical group all showed microscopically definite carcinoma for varying distances beneath Brunner's glands. The extension rarely involved the mucosa but spread along the submucosa often in lymph nodes. The extent of the duodenal invasion was measured in millimeters from the microscopic slide and because of the marked shrinkage in the tissues due to fixation and dehydration the figures were corrected to correspond to the gross specimens. This degree of shrinkage for tissues fixed in Zenker fluid dehydrated in the alcohols and xylene and embedded in petrolatum was found to be approximately 20 per cent. Nine of sixteen pylorotomies showed tumor cells at the extreme edge of the resection, apparently indicating that carcinoma was still present in the remaining duodenum in only six was normal duodenum present beyond the farthest deposit of carcinoma. The sections from the necropsy cases were cut too short, because all six showed tumor at the extreme cut edge. The significance of the statistics is that the surgeon should resect more duodenum. The first portion of the duodenum measures on the average 5 cm



This length should allow the surgeon to resect at least 3 cm beyond the pylorus and still leave enough to fold in in the distal portion. If this procedure were followed there would be fewer specimens showing tumor at the distal cut edge and less recurrence along the line of closure.

**Factors in Mortality of Acute Appendicitis**—Pattison believes that, if the patient is seen relatively early after perforation, the result of operative treatment is satisfactory, as evidenced by the low mortality rate in the group with local peritonitis. Also there are many patients in whom a perforation is suspected clinically but at the time of operation the pathologic condition is uncomplicated. In all probability this is the situation in many cases treated conservatively for a peritonitis in which an abscess never forms. Even in cases in which there is an advanced peritonitis immediate operation is indicated as long as the patient is in good condition thereby eliminating the focus of the infection. The argument is advanced that operation traumatizes the peritoneum before immunity is established, and this is deleterious. Even if this were so, the operation can be done with a minimal degree of trauma by using a McBurney incision and spinal anesthesia and by handling all the tissues with extreme gentleness. For the most part conservative treatment in cases with a spreading peritonitis is relegated to patients who are in any degree of shock or who are moribund on admission. The only other group of patients who should be treated conservatively on admission is the group with appendical abscesses whose symptoms have been present for less than seventy-two hours. In this group the abscesses are not adequately walled off to warrant operative manipulation. The total mortality rate for acute appendicitis in the author's hospital is 52 per cent. The mortality rate has increased approximately 1 per cent in the last ten years, in all probability as a result of an increase in the number of surgeons operating and the more frequent use of a right rectus incision. More than two fifths of all deaths occur in patients in the two extremes of life. An accompanying diabetes mellitus exerts a profound influence on the prognosis in acute appendicitis. The mortality rate for appendical abscesses is 86 per cent. Operation on these patients should be delayed until adequate walling off has been obtained. Single preoperative chills are of no prognostic value.

### Archives of Internal Medicine, Chicago

57 477 648 (March) 1936

- Acute Anterior Poliomyelitis. Orthopedic Aspects of California Epidemic of 1934. J. C. Wilson and P. J. Walker. Los Angeles —p. 477.
- Uncomplicated Auricular Fibrillation and Auricular Flutter. Frequent Occurrence and Good Prognosis in Patients Without Other Evidence of Cardiac Disease. E. S. Orgain, L. Wolff and P. D. White. Boston —p. 493.
- Meningitis Due to Type I Pneumococcus. Report of Case with Recovery Due to Serum Therapy. C. K. Weil. Montgomery, Ala. —p. 514.
- New Formulas for Predicting Basal Metabolic Rate from Pulse Rate and Pulse Pressure. J. M. Read and C. W. Barnett. San Francisco —p. 521.
- Changes in Temperature of Skin Following Ingestion of Food. G. Booth and J. M. Strang. Pittsburgh —p. 533.
- Clinical Value of Test for Hippuric Acid in Cases of Disease of Liver. A. J. Quick. Milwaukee —p. 544.
- Hereditary Factor in Obesity. R. Gurney. Buffalo —p. 557.
- Recovery from Generalized Amyloidosis Secondary to Pulmonary Tuberculosis. Report of Case. M. B. Rosenblatt. New York —p. 562.
- Further Data on Artificial Pneumothorax in Experimental Lobar Pneumonia. L. M. Lieberman and S. S. Leopold. Philadelphia —p. 566.
- Relationship of Feltz's and Allied Syndromes to Sepsis Lenta. H. A. Singer and H. A. Levy. Chicago —p. 576.
- Iliac Arteries Compensate for Occlusion. Arteriographic Study of Collateral Circulation. E. V. Allen. Rochester, Minn. —p. 601.
- Pneumothorax Therapy in Experimental Lobar Pneumonia in Dog. Report of Case in Man. G. L. Birnbaum and P. N. Coryllos. New York —p. 610.
- Bright's Disease. Review of Recent Literature. W. S. McCann. Rochester, N. Y. —p. 630.

**Uncomplicated Auricular Fibrillation**—Orgain and his associates studied forty-nine cases of auricular fibrillation and seven cases of auricular flutter in none of which definite evidence of cardiac disease was demonstrated by history, physical examination, roentgen study or electrocardiograms of the patients. The ages of the patients in whom auricular fibrillation was present varied from 21 to 75 years. All save three cases were of the paroxysmal type, few paroxysms occurred in 46 per cent of these. Definite etiologic factors were few. Follow-up studies on 90 per cent revealed one probable death from cardiac disease four years

after the onset of paroxysms of auricular fibrillation, six patients with cardiovascular complications which had appeared some years after the first auricular fibrillation, and one patient in whom hyperthyroidism had developed. The prognosis for life and for the maintenance of adequate cardiac function is, with rare exceptions, excellent and the outlook for improvement in the number of paroxysms is also good. Reassurance, the avoidance of exciting factors and the use of quinidine sulfate are regarded as the most useful therapeutic measures. The ages of the other seven patients ranged from 27 to 66 years. All attacks were paroxysmal and varied from one to three instances to innumerable attacks in the remainder. The duration of individual paroxysms was from a few minutes to five years, but usually several hours. Electrocardiographic proof of flutter was obtained in each case. The precipitating factor was clearly exertion in three cases, flutter followed a therapeutic malarial chill in one, and in another it appeared after the removal of a gangrenous appendix with the patient under ether anesthesia. Six patients have been followed up for from two to twenty-seven years after the onset; five are entirely well at the time of writing and the remaining patient at 66, after twenty-seven years, has some dyspnea, cardiac enlargement, apical and aortic systolic murmurs and hypertension, but no signs of congestive failure. The seventh patient was last seen eighteen years after his first attack, when he had frequent paroxysms of auricular fibrillation and roentgen study showed slight enlargement of the left ventricle. Quinidine or its isomer quinine was used alone in five cases, being effective in restoring normal rhythm or preventing paroxysms in three and later proving ineffective in one of these. Digitalis restored normal rhythm in one of five cases in which it was tried. Quinidine after digitalization converted the rhythm to normal in two instances.

**Temperature of Skin Following Ingestion of Food**—Booth and Strang observed the blood pressure and the temperature of the skin after a meal designed to attain satiety on nineteen persons of normal weight and fourteen obese subjects. The response of the blood pressure was identical in the two groups and probably due solely to the work of eating. In the group of normal weight there was an elevation of the temperature of the skin, which began shortly after the start of the meal and reached a maximum of 2 C (3.6 F) in sixty minutes. The elevation of the skin temperature in the obese group was definitely diminished and delayed as compared with that of the group of normal weight. The difference in reaction may be one factor in the delayed sensation of satiety in obese persons and therefore a controlling factor in the determination of the large intake of obese persons.

**Hereditary Factor in Obesity**—Gurney studied seventy-five stout women in the outpatient department of the Buffalo General Hospital with three points in mind: (1) the factors associated with the onset of obesity as compared with the same factors occurring in a not stout control group, (2) the incidence of obesity in the parents of the stout group as opposed to that in the parents of the not stout control group, (3) the body build of the progeny of different matings with especial reference to mendelian inheritance of build. Fifty-five women who were definitely not stout were chosen at random as controls. The control patients came from approximately the same age group and had approximately the same incidence of operations and pregnancies—the two most common factors apparently associated with the onset of obesity. Sixty-three women in the stout group gave a reliable history as to the onset of obesity. Of the forty-one of these who bore children, twenty-nine reported a direct association between pregnancy and the onset of obesity. Of the twenty-four who had major operations, seven reported a direct association between the operation and the onset of obesity. Of the remaining twenty-seven patients, four associated the onset of obesity with puberty and two with the menopause, eight maintained that they were 'always stout' and thirteen apparently had no determinable factor associated with the onset of obesity. When the build of the parents of the stout and the control group is investigated a difference in the incidence of obesity is apparent. Of the sixty-one stout women whose family history seemed unquestionably reliable, twenty-six had a stout mother, nine had a stout father and fifteen had both a stout mother and a stout father. In contrast to this, of the forty-seven not stout patients with an equally reliable family

history, fourteen had a stout mother, one had a stout father and three had both a stout mother and a stout father. This makes a total of 38 per cent, with either one or both parents stout as opposed to 82 per cent in the stout group. If build is inherited, this inheritance must be along mendelian lines. A study of the progeny of different matings in this group shows a definite difference in variability. There were eighty-nine offspring from matings of stout persons, sixty-five of whom were stout. Of the 170 offspring of matings of a stout and a not stout person, seventy were stout. Of the 176 offspring of matings of persons who were not stout, only sixteen were stout. Thus there is present a marked difference in variability in the progeny of different matings. The fact that the offspring of stout parents are more variable than those of parents who are not stout suggests, as pointed out by Davenport, that stout persons carry gametes for slenderness, whereas persons who are not stout rarely carry gametes for stoutness. As a corollary to this, regression to a more normal build as a result of these gametes for slenderness can be seen in the offspring of stout parents to a considerably greater degree than in the offspring of slender parents. There appears to be no definite dominance in the series, which is not essential in mendelian inheritance.

### Arkansas Medical Society Journal, Fort Smith

32 161 180 (April) 1936

- Acute Appendicitis in Infancy. Case Report. T. Brock, C. B. Billingsley and R. E. Weddington. Fort Smith—p. 161.  
Undulant Fever. H. A. Dishongh, Little Rock—p. 164.

### California and Western Medicine, San Francisco

41 145 248 (March) 1936

- Cardiac Care After Decompensation. R. M. Clarke. Los Angeles—p. 153.  
Aschheim Zondek Test for Pregnancy. E. H. Ruediger. San Diego—p. 157.  
Cancer Studies. In Relation to Results of Treatment with an Aqueous Extract Made from Cortex of Suprarenal Gland. Five Year Review on Treatment Results in Inoperable and Hopeless Malignancies. Report on Seventy Five Hundred and Thirteen Cases. W. B. Coffey and J. D. Humber, San Francisco—p. 160.  
Pathology of Sudden Operative Death. P. Michael. Oakland—p. 179.  
Injection of Sympathetic Nervous System. P. G. Flothow. Seattle—p. 182.  
Neurosyphilis. Its Treatment. N. N. Epstein. San Francisco—p. 186.

### Canadian Public Health Journal, Toronto

27 10: 156 (March) 1936

- \*Some Features of Epidemiology of Meningococcal Meningitis. G. Rake. New York—p. 105.  
First Production of Diphtheria Antitoxin in the United States. W. H. Park. New York—p. 111.  
Epidemic of Bacillary Dysentery in Matane. Quebec. A. R. Foley. Quebec. Que.—p. 113.  
Cancer Control as Seen by the Public Health Nurse. Margaret I. Brady. Montreal—p. 118.  
Arsenical Poisoning, Dermatitis. C. A. Cleland. Brockville. Ont.—p. 122.  
Accidents and the Public Health with Particular Reference to Automobile Accidents. A. H. Sellers. Toronto—p. 125.  
Mental Hygiene in Social Agencies. Health Service. Euna P. Kennedy, Montreal—p. 138.  
The Quantitative Estimation of Indole by Means of Dialysis. D. C. B. Duff and R. Holmes. Vancouver. B. C.—p. 141.

**Epidemiology of Meningococcal Meningitis.**—Rake states that an examination of our knowledge of the epidemiology of meningococcal meningitis and of the relationship of the organism to the human host during the initial stages of infection becomes of the greatest importance. His discussion of some aspects of this knowledge reveals many "blind spots" in which comprehension is still very vague. 1 While some evidence has been obtained on the differentiation of parasitic and saprophytic strains it is as yet much too scanty to form a sound basis of any definite generalization. 2 Certain accepted facts regarding the duration of the carrier state are open to question and this question will have to be investigated anew. 3 Through the introduction of a new technique it has been possible to carry out some investigation of the heretofore unknown comparative virulence of case and carrier strains. The results obtained are scanty but are sufficiently suggestive to warrant further work along these lines. 4 The precise relationship of the organism and the host during the carrier state is still unknown, though there is evidence that in certain cases it must be intimate and that it may be in the nature of an infection.

### Journal of Biological Chemistry, Baltimore

113 341 598 (March) 1936 Partial Index

- Effects of Inhalation of Carbon Dioxide on Carbon Dioxide Capacity of Arterial Blood. H. E. Himwich, E. F. Gildea, N. Rakieten and D. Du Bois. New Haven. Conn.—p. 383.  
Liver Injury by Chloroform. Nitrogen Metabolism and Conservation. Liver Function and Hemoglobin Production in Anemia. F. S. Dift, Frieda S. Robscheit Robbins and G. H. Whipple. Rochester, N. Y.—p. 391.  
Studies in Histochemistry. VI. Quantitative Distribution of Vitamin C in Small Intestine. D. Glick and G. R. Biskind. San Francisco—p. 427.  
Mechanism of Lysozyme Action. K. Meyer, J. W. Palmer, R. Thompson, Devorah Khorazo. New York—p. 479.  
Gravimetric Methods for Determination of Total Body Protein and Organ Protein. T. Addis, L. J. Poo, W. Lew and D. W. Yuen. San Francisco—p. 497.  
Deuterium as an Indicator in Study of Intermediary Metabolism. V. Desaturation of Fatty Acids in Organism. R. Schoenheimer and D. Rittenberg. New York—p. 505.

### Journal of Lab. and Clinical Medicine, St. Louis

21 551 662 (March) 1936

- Nature of Rheumatic Fever. H. F. Swift. New York—p. 551.  
Natural History of Childhood Rheumatism in Minnesota. M. J. Shapiro. Minneapolis—p. 564.  
\*The Relationship Between Rheumatic Fever and Rheumatoid Arthritis. M. H. Dawson and T. I. Tyson. New York—p. 575.  
Geographic Distribution of Rheumatic Fever and Rheumatic Heart Disease in the United States. E. S. Nichol. Miami. Fla.—p. 588.  
Outline of Studies Relating to Vitamin C Deficiency in Rheumatic Fever. J. F. Rinehart. San Francisco—p. 597.  
\*Influence of Tonsils on Rheumatic Infection in Children. A. D. Kaiser. Rochester, N. Y.—p. 609.  
Fever Therapy in Chorea and in Rheumatic Carditis With and Without Chorea. Lucy Potter Sutton and Katharine G. Dodge. New York—p. 619.  
\*Theory Concerning Mechanism and Significance of Allergic Response. W. T. Vaughan. Richmond. Va.—p. 629.  
Cultural Method for Diagnosis of Gonorrhea Employing Direct Oxidase Reaction. C. I. Spohr and M. J. Andy. Columbus. Ohio—p. 650.  
Animal Growth and Space Restriction. J. N. Kugelmass and Emma Louise Samuel. New York—p. 655.

**Relation Between Rheumatic Fever and Rheumatoid Arthritis.**—Dawson and Tyson state that the current tendency in American and English clinical medicine to regard rheumatic fever and rheumatoid arthritis as separate and distinct diseases does not meet with universal favor. The authors offer evidence in support of the hypothesis that the two diseases are intimately related and possibly different manifestations of the same fundamental pathologic process. They consider the following phases of the problem: familial relationship, geographic distribution, initiating factors, seasonal incidence, age incidence and clinical manifestations in different age periods, pathologic similarities and immunologic observations. The relationship between rheumatic fever and rheumatoid arthritis is at the present time of greater theoretical than practical importance. For clinical purposes it is important that the two should be differentiated whenever possible, for in typical cases each presents its own symptoms, each demands its own therapeutic management and each requires its own prognosis. For theoretical reasons, a clearer understanding of the nature of the relationship of the two diseases is of great importance and may contribute much to the knowledge of both conditions. The clinical evidence presented suggests that rheumatic fever and rheumatoid arthritis form a continuous sequence of one disease process with different expressions in each individual phase. These different expressions appear to be in large measure determined by the age of the patient, but undoubtedly other factors, such as individual host susceptibility, are also of importance. The pathologic evidence representing a difference in degree rather than in kind, strongly suggests that the two represent different responses to the same, or closely related, etiologic agents. A final understanding of the relationship between rheumatic fever and rheumatoid arthritis will not be possible until the etiology of both diseases has been definitely established. At present there is a certain amount of evidence suggesting that infection by *Streptococcus haemolyticus* plays a part in the production of both diseases. However this evidence is as yet far from complete and even if it could be established that the two diseases are due to the same agent, it would not prove their identity.

**Influence of Tonsils on Rheumatic Infection.**—To estimate the incidence of rheumatic infection in children whose tonsils have been removed and in those whose tonsils have not been removed, Kaiser had the parents of 48,000 children inter-

viewed. Of this number, 20,000 children had been tonsillectomized and 28,000 had not had their tonsils removed. Based on data obtained from the parents, nearly all the rheumatic manifestations occurred less commonly among tonsillectomized children. Rheumatic fever, which is usually a severe type of rheumatic infection, was reported with considerably less frequency in the tonsillectomized children. Among the tonsillectomized children there were 37 per cent fewer cases of rheumatic fever. Muscular rheumatism, termed growing pains was reported only slightly less often in tonsillectomized children. Chorea was noted with equal frequency in the two groups while rheumatic carditis was somewhat less common among the tonsillectomized children. The statistical information based on the parents' history of the child leaves some uncertainty in the value of the data. It does, however, clearly indicate that rheumatic disease occurs in children whose tonsils have been removed, and it also seems highly probable that initial attacks of rheumatic infection are somewhat less likely to develop in children whose tonsils have been removed. Recurrent attacks of rheumatism occurred as frequently in tonsillectomized children as in the untreated ones at all ages except between the ages of 10 and 15, when recurrent attacks are less common in both groups. Though the number of recurrences of such manifestations as rheumatic fever, chorea and muscular pains was not lessened by removal of the tonsils, it was demonstrated that carditis associated with recurrent attacks of rheumatic fever and chorea was somewhat less severe in the tonsillectomized children. Though the removal of the tonsils fails to decrease the number of recurrences of rheumatic infections there is a decidedly lower mortality rate among these children. If other studies show similar results, there is a definite indication in every rheumatic child for the removal of the tonsils.

**Mechanism of Allergic Response**—Vaughan explains the allergic response as an integrated reaction complex, fundamentally protective in nature but defective in execution, since it lacks coordination and a directing influence. It is in essence a manifestation of environmental maladjustment. Given sufficient heavy exposure (contact, meteorological, food infections), 100 per cent of the population is capable of responding abnormally, either with hyperergy or allergy. There appear to be all grades from those who are extremely susceptible to those who are extremely insusceptible. Heredity and the nature of the exciting factor appear to play a part in determining susceptibility. Heredity represents either a congenital inability to adjust or a congenital predisposition to maladjust. Such a person is often spoken of as vagotonic. The mildly allergic individual may become sensitive to a relatively new or strange allergen with which he comes into only occasional contact. The person with high susceptibility may become sensitive to these and also to those substances with which he comes in frequent or constant contact. If susceptibility to the development of allergy varies from 0 to 100 per cent, one would expect occasionally to find persons who are allergic to practically everything. Such types, although fortunately uncommon undoubtedly do exist. Until now chief effort has been given to neutralization or counteraction of a specific response to recognized specific allergens. It seems possible that efforts to develop a nonspecific or physiologic means of controlling the perverted disoriented reaction of protection so that it may become a normal oriented reaction might actually lead to the discovery of a remedy that will adequately control the response irrespective of the activating cause.

### Kentucky Medical Journal, Bowling Green

34 83 128 (March) 1936

- Hematologic Reactions Following Arsphenamines M. L. Rich, Covington—p. 94  
Injuries of the Hand S. L. Koch, Chicago—p. 101  
Epidemiology of Poliomyelitis H. R. Levell, Louisville—p. 110  
The Pathology of Poliomyelitis A. J. Miller, Louisville—p. 113  
Clinical Aspects of Poliomyelitis W. W. Nicholson, Louisville—p. 115  
Orthopedic Treatment of Poliomyelitis R. T. Hudson, Louisville—p. 117  
Constitutional and Acquired Factors in Resistance to Tuberculosis E. R. Long, Philadelphia—p. 124

**Hematologic Reactions Following Arsphenamines**—In summarizing the toxic manifestations of arsphenamine on the blood Rich finds that it may act in two ways. 1. It is capable of destroying some of the circulating elements, the platelets and

the white cells in particular. This type of reaction comes on immediately or shortly after the injection and is not serious. Recovery occurs within a few days. 2. It may cause an aplasia of one or all of the hematopoietic tissues in the marrow, depending on the degree of poisoning. In the less serious cases only the platelets or the granular cells are involved while in severe cases all the marrow elements are affected. This reaction is more delayed than in the peripheral type and has a high mortality. Recovery, if it does occur is slow. These reactions are frequently preceded by minor toxic manifestations. Symptoms of purpura, pallor, weakness or sore throat should be regarded as such, and further treatment should be withheld until the blood is examined. A white count alone will be sufficient in most cases, if it is 4,000 or more it is probable that the marrow has not been affected. Only in this manner will one be able to forestall the more serious reactions. Little can be said with regard to the treatment of the blood dyscrasias once they have occurred. The peripheral type needs no treatment other than symptomatic relief. When there is actual depression of the marrow the problem is different. The patient must be tided over with a minimal risk of infection until the marrow regains its ability to produce cells. Transfusions of whole blood accomplish this best. They should be given at frequent intervals to maintain the count as high as possible. Of equal importance with the blood transfusions is proper oral hygiene to prevent, if possible the stomatitis and angina. The diet should be nourishing and rich in vitamins. Iron and liver are frequently prescribed. If recovery should occur, it must be emphasized that further treatment with arsphenamines must never be given.

### Medical Bull. of Veterans' Adm., Washington, D. C.

12 333 438 (April) 1936

- Observations of Russian Neuropsychiatrist in Ethiopia During War with Italy in 1896 Historical Note M. K. Amdur and H. M. Cleckley—p. 331  
Unfavorable Results of Phrenic Nerve Operations A. C. Walker—p. 338  
Simple Method for Identification of Phrenic Nerve A. S. Broga—p. 43  
Effects of Long Hospitalization on Psychotic Patients E. F. Dogen—p. 345  
Changing Concept of Bright's Disease E. M. Barnes—p. 354  
Familial Amyloidosis Case Reports E. S. Maxwell and J. Kimball—p. 365  
Suggestions for Repair of Hernia of Intestines O. M. Warner—p. 370  
Avertin N. H. Badames—p. 373  
Use of Quartz Glass in Promoting Heliotherapy R. I. Cook and Mabel C. Ryan—p. 379

### New England Journal of Medicine, Boston

214 563 612 (March 19) 1936

- Gastroscopic Observations in Neoplasm E. B. Benedict, Boston—p. 563  
Salmonella Suispestifer Infection with Surgical Complications I. J. Walker, Soma Weiss and R. A. Nye, Boston—p. 567  
Cancer of the Mouth: Care of the Patient Utilizing Prolonged Anesthesia Obtained by Alcohol Injection of Branches of the Fifth Nerve H. F. Hare, J. L. Poppen and W. B. Hoover, Boston—p. 572  
The Psychogenic Problem (Endocrine and Metabolic) in Chronic Aritmia H. A. Mason and K. A. Spencer, Boston—p. 576  
Unusual Fracture of Lower End of Radius (Atypical Colles') D. P. Penhallow, Washington, D. C.—p. 581  
Proposal for Clinicopathologic Conference R. H. Goodale, Worcester, Mass.—p. 582  
Pregnancy in Bicornate Uterus Case Report M. W. Pearson and H. W. Angier, Ware, Mass.—p. 583

**Salmonella Suispestifer Infection with Surgical Complications**—Walker and his associates report two cases with localized surgical lesions due to the American type of *Salmonella suispestifer*. In the first case following a transient bacteremia a metastatic splenic abscess developed, causing the clinical picture of left subdiaphragmatic abscess. Surgical drainage of the abscess relieved the patient. In the second patient *Salmonella suispestifer* was responsible for cholecystitis with the usual clinical course. In spite of the fact that both patients were adults *suispestifer* infections in man have been reported most commonly in babies and children. Unless serologic and bacteriologic studies are complete many of the lesions associated with *Salmonella suispestifer* will be attributed to some unidentified gram-negative motile organism. Localized surgical lesions associated with *Salmonella suispestifer* are

rather rare and they are similar to the surgical complications of typhoid and paratyphoid. Suppurative abscesses, in the majority of instances, occur probably as the result of septicaemia secondary to a gastro-intestinal infection due to contamination of food with *Salmonella* *supestifer*.

### New Jersey Medical Society Journal, Trenton

33 127 186 (March) 1936

- Surgical Treatment of Massive Hemorrhage of Peptic Ulcer L G Beisler Hillsdale—p 133  
Chronic Prostatitis H M Ill Newark—p 136  
Prophylaxis of Communicable Diseases Article Number One M L Rippes Elizabeth—p 139  
Early Diagnosis in Abdominal Surgery E L Elason Philadelphia—p 143  
Simple Diet for Ambulatory Diabetic Patients B Saslow Newark—p 144  
Familial Hemolytic Jaundice J G Kaufman Newark—p 150  
Clinical versus X-Ray Study in Acute Mastoiditis C W Barkhorn Newark—p 153  
The Operative Treatment of Concomitant Squint A B Reese New York—p 159  
Schuller-Christian's Disease Report of Case S A Levinsohn Paterson—p 163

### New Orleans Medical and Surgical Journal

88 543 600 (March) 1936

- The Pathologist's Part in Malignant Disease from the Surgeon's Point of View U Maes New Orleans—p 543  
The Constitutional Basis of Trachoma H Schroeder New Orleans—p 547  
Gynecologic Aspects of Low Back Pain J F Dicks New Orleans—p 554  
Urologic Aspects of Low Backache J G Pratt New Orleans—p 556  
Orthopedic Aspects of Low Back Pain G C Battalora New Orleans—p 558  
\* Liver Deaths in Surgery Analysis of Thirty Four Cases with New Explanation of Clinical and Pathologic Picture F T Boyce and Elizabeth M McFetridge New Orleans—p 563  
Calcium Dextrose Therapy in the Late Toxemias of Pregnancy A A Landry Plaquemine La—p 567  
What the Physician Should Know from the Coroner's Standpoint C G Cole New Orleans—p 573  
Modern Therapy in Treatment of Burns J H Connell New Orleans—p 575

**Liver Deaths in Surgery**—Boyce and McFetridge analyze twenty-three deaths following biliary surgery, five following pancreatic surgery and six following liver trauma, all of which are indubitable instances of the so-called liver-kidney syndrome. A brief report is also made of the same syndrome in burns, intestinal obstruction and thyroid disease. From their experimental work they feel justified in drawing the following conclusions: 1 The renal changes found at necropsy are the end result of the release of the biliary obstruction and not of the obstruction itself, since they were absent in the dogs that were killed for necropsy before their experimental obstruction was released. 2 Hepatic changes are a constant concomitant of any cholestatic disease, but the extreme changes seen in this type of case are not so much the result of the original obstruction as of its release. 3 Whatever may be the nature of the toxic substance present in the liver in such cases, it is water soluble, since the typical picture could be reproduced only by aqueous and saline extracts made from the liver of the patient who died a "liver-kidney" death after cholecystectomy and not by the alcoholic extract. The authors feel almost certain that they could have reproduced the same picture with extracts made from the livers of the dogs which died a *uremic* death after release of their experimental biliary obstruction had they used them in stronger concentration. They are conducting a series of experiments to determine this point. Their combined experimental and clinical observations have led them to evolve the following explanation of the liver-kidney syndrome. The patient with biliary disease exhibits some degree of liver damage, which is not incompatible with the stress and strain of ordinary life. But when surgery is undertaken, even under the most favorable circumstances, other factors are introduced, and with these new factors the liver, already the seat of a pathologic process, cannot cope. As a result its function promptly fails, and the toxic substances that reach it in the course of normal body metabolism are thrown off undetoxified. The kidney, which is, after the liver, the great detoxifying organ of the body must take up the work of the liver purely as a physiologic matter when the detoxifying function of the

liver fails. But in the kidney the margin of safety is very slight, it promptly breaks down in its turn and an overwhelming and lethal toxemia is the natural consequence. The hepatic changes in these cases always precede the kidney changes, and, if the patients who die promptly with hyperpyrexia and who exhibit liver degeneration at necropsy could be kept alive long enough, they would show precisely the same clinical and post-mortem renal changes as do the patients who die later with typical symptoms of uremia.

### Psychoanalytic Quarterly, Albany, N Y

5 1 146 (Jan) 1936

- Inhibitions Symptoms and Anxiety S Freud translated by H A Bunker—p 1  
The Problem of Negative Therapeutic Reaction Karen Horney New York—p 29  
The Principle of Multiple Function Observations on Overdetermination R Walder, Vienna Austria translated by Marjorie Haeblerin Milde—p 45  
Fetishism Two Cases E Kronengold and R Sterba Vienna Austria, translated by Bettina Warburg—p 63  
Ego Dangers and Epilepsy Margaret Ribble New York—p 71  
Endocrine Approach to Psychodynamics R G Hoskins Boston—p 87  
Psychoanalytic Note on Jane Austen Clarissa Rinker Urbana Ill—p 108

### Public Health Reports, Washington, D C

51 241 262 (March 6) 1936

- Prevention of Intravenously Inoculated Polymyositis of Monkeys by Intranasal Instillation of Picric Acid C Armstrong—p 241  
The Transplantation of Splenic Tissue in Mice J J Bittner—p 244

51 263 284 (March 13) 1936

- The Official United States and International Unit for Standardizing Gas Gangrene Antitoxin (Oedematis) Ida A Bengtson—p 266

### Radiology, Syracuse, N Y

26 261 390 (March) 1936

- Diagnosis of Bronchial Carcinoma Clinical and Roentgenologic Study of Fifty Cases J T Farrell Jr Philadelphia—p 261  
Correct Diagnosis of the More Common Urologic Lesions E L Shifflett Indianapolis—p 270  
Roentgen Diagnosis of Lesions of Lower Urinary Tract C L Gilhes and H D Kerr Iowa City—p 286  
\* A 1936 Survey of Biologic Effects of X-Radiation G L Clark Urbana Ill—p 295  
Fibroids and Abnormal Uterine Bleeding Treated by Roentgen Ray and Radium Analysis of One Hundred and Sixty Consecutive Private Practice Cases A H Williams Grand Rapids Mich—p 313  
Guarded Field X-Ray Ionization Chamber Note L S Taylor and G Singer Washington D C—p 322  
\* Diverticulum of Cardiac End of Stomach Report of Case L Nathan and M Steiner Brooklyn—p 326  
Effect of Ultrahigh Voltage in Gynecologic Carcinomas Preliminary Report H Schmitz Chicago—p 331  
Displacements of Left Kidney in Diagnosis of Tumors of Left Flank and Abdomen P Shamlaugh Boston—p 335  
Value of Left Anterior Oblique Position in Cholecystography S Zaldin Brooklyn—p 340  
Diagnostic Features of Ileus E L Elason and J Johnson Philadelphia—p 342  
Epithelioma of the Lip C B Ward Seattle and A. Betts Spokane Wash—p 349  
Tissue Dosage from Interstitial Radiation M C Reinhard and H L Goltz Buffalo—p 356  
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Seventh Instalment) I S Trostler Chicago—p 360

**Biologic Effects of X-Radiation**—Clark believes that the undoubted value of x-rays as a research tool to the biologist in the field of genetics has been convincingly demonstrated in the last few years by the work of Muller of Texas and a number of other workers. Much less well known are the great possibilities of cell studies depending on an increasingly quantitative evaluation of characteristic radiosensitiveness, which may well become the most powerful method of pathologic diagnosis. Uncertainty remains as to fundamental differences between normal and pathologic tissues, and the mechanism involved in radiobiology and therapy of cancer cells. It has seemed desirable to the author, therefore, to summarize briefly the present knowledge of the biologic effects of x-radiation, under the following heads: bactericidal and general lethal effects, biologic dosimeters, effects on the hereditary material, effects on normal cells, the radiosensitiveness of cells, recovery and the time factor, x-ray effects on human tissues, the stimulating effect of x-rays, photochemical experiments with a possible bearing on biologic effects, medical implications of cell radiosensitivity.

and reactions to radiation, with especial reference to cancer and a new x-ray method (x-ray diffraction method of structure analysis) of pathologic diagnosis

**Diverticulum of Cardiac End of Stomach**—Nathanson and Steiner report a case of diverticulum of the stomach occurring in a male and found together with a duodenal ulcer. Relatively few of the patient's symptoms were characteristic of duodenal ulcer but could be attributed to the diverticulum. Chronic constipation with severe straining at stool for many years undoubtedly produced increased intra-abdominal pressure and was probably a contributing cause.

### Wisconsin Medical Journal, Madison

35 169 252 (March) 1936

The Management of Organic Peripheral Vascular Diseases L C Herrmann Cincinnati—p 185

\*A Survey of Urinary Frequency in Women J B Wear Madison—p 189

Clinical Experiences with Ultra Short Wave Therapy W J Egan Milwaukee—p 192

Nephrolithiasis and Bone Disease I R Sisk Madison—p 195

Experiences with Forced Spinal Drainage of the Central Nervous System H H Reese and I B Shulak Madison—p 200

Pathologic Conditions of the Female Urethra C G Richards Kenosha—p 205

The Decline of Diphtheria in Fever Hospital M J Fox Milwaukee—p 207

**Urinary Frequency in Women**—Wear points out that the three regions that are most likely to be the seat of trouble in extra urinary tract frequency are the central nervous system, the pelvis and the perineum, therefore a rather strict routine procedure should be adopted in efforts at diagnosis. Particular attention should be paid to (1) the duration of the frequency (many of the nonspecific infections of the urinary tract are self limited, and the longer the symptom has persisted the more serious the factors likely to be present), (2) whether the frequency is constant or intermittent and if anything seems to influence it, (3) whether it is worse in the daytime or at night, and if at night whether it awakens the patient from sleep. Many times patients will complain of frequency, yet they will never have to get up at night. In the physical examination the central nervous system should be carefully ruled out. A competent pelvic examination must be done including a visual inspection of the cervix and urethra. An examination of the abdomen will reveal enlargement in the kidney regions and a distended or tender bladder. Then special and laboratory examinations should be performed. Much valuable information may be had from a catheterized urine and an uncatheterized urine that contains pus is valueless in the female. A visual and instrumental investigation of the urethra will establish the presence of urethral stricture, caruncle or urethritis. The plain flat plate will rule out in most cases the presence of renal, ureteral or vesical calculi, as well as the possible presence of a spina bifida occulta. A roentgenogram of the bladder filled with some radiopaque solution will aid in the diagnosis of diverticula and malignant growths. The records of 100 women examined by the urologic department for urinary frequency were investigated. Eighteen different diagnoses were made. The most common condition found was that of low grade chronic pyelonephritis of one or both sides. In sixty one cases the primary involvement was found to lie above the bladder. In seventeen the trouble was found to lie below the bladder. In eight the bladder was the primary seat of involvement and in eleven cases the pathologic changes were found outside the urinary tract. In three cases no cause for the frequency could be found. The bladder showed no visual evidence of pathologic change in thirty-eight cases. This establishes the fact that urinary frequency does not always indicate that the bladder is the primary seat of the pathologic change.

### Yale Journal of Biology and Medicine, New Haven

S 337 420 (March) 1936

Thomas Miner M D of Middletown Early Connecticut Physician of Exceptional Culture F K Hallock Cromwell Conn—p 337

Papillary Adenoma of Corpus Uteri Note A A Liebow New Haven Conn—p 353

Immunizing Value for Mice of Vaccines Prepared from R and S Bacillus Enteritidis W H Hale New Haven Conn—p 357

Some Minor Ailments Their Importance in the Medical Curriculum I P Hamburger Baltimore—p 365

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Ophthalmology, London

20 65 128 (Feb) 1936

Cystic Retinal Detachments H Ridley—p 65

Treatment and Complications of Chalazia A H Briggs—p 68

Defunct London Eye Hospitals A Sorshy—p 77

### British Journal of Physical Medicine, London

10 165 182 (Feb) 1936

Some Aspects of Treatment of Diabetes Mellitus T H Oliver—p 167

Physical Treatment of Gout M B Ray—p 170

Rheumatoid Arthritis G L K Pringle—p 173

Diet in Winter J B Alexander—p 175

Inhalation Treatment Notes on Inhalation Department at the St John Clinic and Institute of Physical Medicine L Hill—p 177

Rheumatism and the Wilde Bath J S Ellis—p 179

### British Medical Journal, London

1 195 244 (Feb 1) 1936

Prostatectomy A C Morson—p 195

Treatment of Malignant Prostate K M Walker—p 201

\*Prostatic Resection Simplified Technique C D Mutland—p 203

Synthetic Magnesium Trisilicate Its Action in Alimentary Tract N Mutch—p 205

Alum Precipitated Toxoid in Diphtheria Immunization G Chesnev—p 208

Immunization Against Diphtheria with Alum Precipitated Toxoid (A P T) H J Parish—p 209

**Prostatic Resection**—Mutland performed diathermic resection by the suprapubic route in ten cases with apparently completely satisfactory results. It has been his experience that about 40 per cent of patients with prostatic obstruction are not fit to stand the shock, sepsis and loss of blood entailed in the performance of a complete prostatectomy at the time when they first come to a surgeon for advice. He has found that the use of the diathermic method of partial resection allows about half of these otherwise inoperable cases to receive the benefit of surgical relief without subjecting the patient to any unduly high risk. The greatly diminished shock, the lessened postoperative pain, the almost complete bloodlessness of this operation and the small area of damaged bladder surface are the factors that contribute to the greater safety of diathermic methods in cases presenting high surgical risk. The largest single factor contributing to the low mortality of this type of operation is the lessened element of septic absorption evidenced by the smooth and afebrile convalescence enjoyed by the author's patients.

### Edinburgh Medical Journal

43 61 124 (Feb) 1936

Physiology and the Surgeon W H Ogilvie—p 61

\*Salicylates in Rheumatic Fever R M Murray Lyon—p 84

Fats of Human Blood C P Stewart and E B Hendry—p 99

**Salicylates in Rheumatic Fever**—Murray-Lyon reviews the records of 100 cases showing the classic symptoms of rheumatic fever on admission to the hospital. From the frequency distribution curve it is seen that 86.1 per cent of nonsalicylate cases cease to show symptoms within four weeks and that 77.4 per cent of the relapses under salicylates occur within the same period and further that relapses are rare when the patient is taking at least 120 grains (7.8 Gm) of salicylate a day. It might seem reasonable, therefore, to propose that all patients with rheumatic fever except the most trivial should be kept on at least this dosage for a month after admission to the hospital. In this way the tendency to recurrent fever should be avoided in a considerable proportion of the cases. The initial dose to be aimed at in an adult should be from 200 to 240 grains (13 to 15.6 Gm) daily, and this amount should be kept up until toxic signs develop or until the temperature has been below 99 F for twenty-four hours. Thereafter a reduction to 180 or 150 grains (11.7 or 9.7 Gm) might be allowed for ten days and after that a dose of 120 grains be maintained until the end of the fourth week. It would be well to continue 60 grains (3.9 Gm) daily until the patient is allowed out of bed when from 30 to 45 grains (2 to 3 Gm) of acetylsalicylic acid might be substituted for a time. The investigation has emphasized the limitations of salicylates in the treatment of



rheumatic fever and has shown that there is every justification for continuing the search for a more reliable antirheumatic agent

### Indian Medical Gazette, Calcutta

71 160 (Jan) 1936

- The Feeding of Infants in India E H Vere Hodge—p 1  
Distribution of Indian Tick Typhus Notes on Laboratory Findings  
H E Shortt and H A H D Silva—p 13  
Some Observations on Hemolysis Caused by Snake Venoms Preliminary  
Note R N Chopra and A C Roy—p 21  
Investigation on Effects of Evipan Sodium on Blood Sugar of Rabbit  
S Prasad and B B Sen—p 24  
\*Fluorescein in Lepra Reaction A T Roy and G R Rao—p 25  
Heterotopic Bone in Elephantoid Tissues M M Cruickshank—p 28  
Composting of Town Refuse by the Edelmist Process S Rajagopal  
J G Shrikhande and V Subrahmanyam—p 30

**Fluorescein in Lepra Reaction**—Roy and Rao treated twelve well marked inmate hospital cases of fairly severe lepra reaction. Nine were given intravenous injections of 10 cc of a 2 per cent solution of Grublers' fluorescein (water soluble) twice a week or, in a few cases, three times in two weeks, depending on the tolerance of the patients and the response obtained, keeping a close watch on the temperature and erythrocyte sedimentation index, which was determined, as a rule, just before administering the next dose of fluorescein. The sedimentation test was done weekly, even after the temperature reached normal. The required quantity of fluorescein solution was prepared fresh each day. The remaining three cases served as controls. One was treated with intravenous injections of antimony and potassium tartrate on alternate days, 4 cc of a 1 per cent solution in physiologic solution of sodium chloride, prepared fresh just before use, being the dose injected. The second was treated with plain physiologic solution of sodium chloride intravenously in 4 cc doses. The third did not receive any special treatment excepting the routine hospital diet and care. The temperature of the nine cases treated tended to return to normal after from two to four injections of fluorescein, thus partially confirming the opinion of Ryrie. The same tendency of the temperature to return to normal was manifested in the control cases. This tendency can be explained by the supervention of the debility factor impairing the reacting power of the individual. To confirm this explanation the authors have compared the erythrocyte sedimentation index curve with that of the temperature curve, which clearly brings out the fact that, though the temperature comes down after two or four injections of fluorescein, the sedimentation index still remains high. A persistent high sedimentation index means prolonged debility. The toxicity of fluorescein is probably instrumental in precipitating the onset of the debility factor in human beings. Fluorescein seems to have no favorable effect on the natural resistance factor and their observations indicate that it brings down the reaction (1) by a probable antipyretic effect and/or (2) by hastening the onset of the debility factor, which, in control cases, as well as in untreated natural lepra-reaction cases, ultimately brings down the reaction. They conclude that it possesses no particular advantage over antimony and potassium tartrate or other routine methods of antireaction treatment. In cases that are particularly susceptible to antimony and potassium tartrate or do not respond to other measures fluorescein may be used.

### Journal Obst & Gynaec of Brit Empire, Manchester

43 1200 (Feb) 1936

- The Upper Urinary Tract in Pregnancy and Puerperium with Especial Reference to Pyelitis of Pregnancy D Baird—p 1  
Symmetrical Cortical Necrosis of Kidneys Importance of Clinical Diagnosis with Account of Two Cases of Recovery Under Medical Treatment G F Gibberd—p 60  
\*Relation of Deficiency of Vitamin E to Antiproteolytic Factor Found in Serum of Aborting Women E Shute—p 74  
Trichomonas Vaginalis J L Collis—p 87  
Specimen of Early Twin Pregnancy in Situ E Essen Moller—p 99  
Anterior Shoulder as Guide to Engagement of Head and to Progress of Labor N A Purandare—p 101  
Large Vesical Calculus and Pregnancy J W Bride—p 105  
Adenomatous Polyp of Unusual Type Occurring in Body of Uterus K Bowes and J Bamforth—p 109  
Is the Uterus a Gland with Internal Secretion? C W Winter—p 113

**Vitamin E and Antiproteolytic Factor in Serum of Aborting Women**—The experiments of Shute show that rats on a diet deficient only in vitamin E content develop a reaction of the blood serum to tryptic ferment similar to that found in

the blood serum of many cases of human spontaneous abortion. This reaction in the blood of rats developed at about the time when breeding tests indicated that the animals had been rendered relatively or absolutely free of the E vitamin. There was one exception to this in six female rats. This property of the blood serum disappeared from it when wheat germ oil was fed to the animal in considerable quantities before it was killed. Rats fed on a normal diet did not show this antiproteolytic power except in one instance that of a young rat raised exclusively, and during the late winter months, on a bread and milk diet. The experiments indicate that litter mates on the same diet free from vitamin E develop E avitaminosis at unequal periods of time after the diet has been begun. Both the breeding and chemical tests demonstrate this fact. Vogt-Moller has noticed this also. There may be a difference of as much as three months in the development of evidences of vitamin E-freeness in animals exactly resembling one another, without any gross variations in the amount of body fat, and fed from the same diet dish. A few cases are presented to illustrate that preparations of vitamin E administered orally to women whose blood serums are resistant to tryptic proteolysis rapidly restore such serums to normal. The return of the blood to normal digestibility usually coincides with the subsidence of clinical signs of impending interruption of pregnancy. The author believes that vitamin E is another of the factors in the body holding estrogenic substance in equilibrium during normal pregnancy. Vitamin E will remove temporarily the antiproteolytic factor present in certain types of blood serum. It should be administered until the antiproteolytic factor has disappeared and then should be continued with such a dosage as will keep the serum normally digestible. In the average case it takes 6 drachms (24 Gm) of a preparation of vitamin E given in a single dose to render the blood serum digestible in twenty-four hours, then 1 drachm (4 Gm) each day will maintain it in the same condition.

### Journal of Tropical Medicine and Hygiene, London

39 2540 (Feb 1) 1936

- Blood Grouping of Aborigines of Musgrave Ranges in the Northwest of South Australia J B Cleland C Hackett and T H Johnston—p 25  
Recent Research in Treatment of Bilharzia Disease F G Cawston—p 28

### Lancet, London

1 239 294 (Feb 1) 1936

- Surgery of Corneal Grafts with Lite Reports B W Rycroft—p 239  
Effect of Sex Hormones on Prostate of Monkeys S Zuckerman and A S Parkes—p 242  
\*Experimental Production by Estrin of Pituitary Tumors with Hypopituitarism and of Mammary Cancer W Cramer and E S Horning—p 247  
Kummell's Disease J P Hosford—p 249  
Use of Lipiodol in Surgery of Biliary Passages J C Ross—p 251

**Experimental Production of Pituitary Tumors**—Cramer and Horning subjected mice to the prolonged influence of estrogenic substance administered by painting the skin twice weekly with a 0.01 per cent solution of the substance in chloroform. The material was applied to male and female mice, both normal and castrated. A mixed strain with a low incidence of spontaneous mammary tumors and a specially inbred strain with a high incidence (about 70 per cent) of spontaneous mammary tumors were used. The five male mice of the high cancer strain which had been subjected to the treatment for a sufficiently long period developed mammary cancer, two of them with tumors in both right and left axillae. The first tumor appeared after sixteen weeks, the last after twenty one weeks of painting with the estrogenic substance. One of the tumors had a metastasis in the lung. Another tumor has been transplanted through three generations so far. A sixth tumor was found in a castrated male mouse of this strain which had been painted for nineteen weeks. An apparently paradoxical result is that none of the females of this strain developed a tumor after being painted for more than six months, although tumors appear in from 60 to 70 per cent of untreated females of this strain when they are more than 6 months old. Of the mixed strain, neither the males nor the females have so far developed a tumor. The results confirm the observations of Lacassagne, who first demonstrated the appearance of mam



mary carcinoma in male mice by injections of estrogenic substance. On the basis of their results the authors emphasize the following conclusions as being of general significance: 1 Estrogenic substance is absorbed by the unbroken skin without producing in it any carcinogenic effect. 2 Unlike the other carcinogenic substances so far studied experimentally, the carcinogenic effect of estrogenic compound is restricted to a tissue remote from the site of application of the carcinogenic agent but possessing a specific physiologic sensitiveness to it. Its action resembles that of the other carcinogenic agents in producing first a hyperplasia of the tissue in which the cancer develops subsequently—the precancerous condition—and in the long period of time necessary to induce cancer. 3 The striking difference between the carcinogenic response to the compound of male mice belonging to two different strains demonstrates clearly the importance of the factor “susceptibility,” which in this case is genetic in origin, in the etiology of cancer. The fact that cancer develops in a site in which it never appears spontaneously demonstrates equally clearly the importance of the extrinsic carcinogenic factor, in this case estrogenic compound. 4 The sensitiveness of the male mamma in its carcinogenic response to the material, contrasted with the great insensitiveness of the female mamma in animals of a pure strain in which the female mamma develops cancer spontaneously in a very high percentage, suggests that either the female organism is able to destroy effectively the excess of the compound administered experimentally or that the carcinogenic response of the mammary epithelium depends on an indirect and not on a direct interaction between the substance and the cells.

### Medical Journal of Australia, Sydney

1 109 152 (Jan 25) 1936

Remarks on Choice of Medicine as Profession Progress of Medicine and Some of the Methods by Which the Present Position Has Been Attained. E. Bramwell—p 109

Clinical Recognition of Arrhythmias and Their Treatment. M. D. Silberberg—p 115

Observations on Cardiac Dyspnea. K. Maddox—p 122

Role of Royal Australasian College of Surgeons in Postgraduate Education. A. Newton—p 129

**Observations on Cardiac Dyspnea**—Maddox designates dyspnea as proportional to the ratio of ventilation to vital capacity rather than to either function alone. Dyspnea as a physiologic phenomenon is to be judged not by the amount of distress which it causes but by the degree of physical effort which brings it into being. The physiologic analysis would appear to be made up as follows: 1 There exists a primary diminution of vital capacity from pulmonary congestion. Reflex dyspnea at rest may result from this cause alone. 2 On muscular exertion there is an immediate reflex increase in the rate and depth of respiration arising from impulses from the working muscles and later from the great veins close to the heart. After exercise, dyspnea goes earlier in the normal subject because the venous pressure factor does not persist as it does for a time in the cardiac patient. 3 The increased ventilation exceeds the threshold of dyspnea because of the existence of an already reduced vital capacity. Chemical change then plays little part in mild exertion but may do so in severe exertion. Orthopnea is an important prognostic guide. Orthopnea results in a shift of the blood from the abdomen to the chest, causing an increase of output of the right ventricle for a few seconds. It increases pulmonary congestion, decreases vital capacity and stimulates the vagi to produce a raised ventilation. The threshold of dyspnea is crossed and the patient sits up after which reverse phenomena occur. At a later stage of failure even sitting up fails to relieve the distressing and constant tachypnea. Cardiac asthma is a complex problem. At one extreme are patients with advanced failure of the left ventricle with distended and rigid lungs in which the lung blood depots are full to the utmost and in which the balance is readily tipped in the direction of another attack, and at the other extreme are patients with a minor grade of failure but whose irritable nervous system allows of sudden coronary spasm together with a spontaneous extra load on the left ventricle from general vasoconstriction. Cardiac asthma is always serious—forty sufferers out of eighty-seven were dead within twelve months. Primary overbreathing and the onset of sleep seem to be sufficient to initiate Cheyne-Stokes respiration in cardiac disease.

The overventilation performs this by diminution in the carbon dioxide tension of the arterial blood, resulting in apnea. In an age of medicine forever striving for earlier diagnosis the cardiologist is at a disadvantage. Dyspnea the earliest symptom of heart disease, in its milder forms, is tolerated by the patient, who contents himself with the philosophy of increasing years. When the physician is consulted, the cardiac reserve is already low. His is the difficult task of assessing what remains, steering a course between pessimism and overoptimism and detecting or avoiding the addition of the fearful cloak of neurotic anxiety.

### Quarterly Journal of Medicine, Oxford

5 1 140 (Jan) 1936

Erythrocyte Sedimentation Rate in Diseases of Heart. P. Wood—p 1  
Observations on Treatment of Malaria Gravis. A. M. Cooke and R. Passmore—p 21

\*Glycogen Disease (von Gierke's Disease, Hepato(nephro)megalia Glycogenica). R. W. B. Ellis and W. W. Payne—p 31

\*Muscular Degeneration Occurring in Late Adult Life with Review of Recorded Cases of Late Progressive Muscular Dystrophy (Late Progressive Myopathy). Two Cases. S. Nevin—p 51

Achrestic Anemia. M. C. G. Isaacs and J. F. Wilkinson—p 69

Leukocytosis in Typhoid Lobar Pneumonia. Serum Treated Cases. J. Fleming—p 105

Gargoylism (Chondro Osteodystrophy, Corneal Opacities, Hepato splenomegaly and Mental Deficiency). R. W. B. Ellis, W. Sheldon and N. B. Capon—p 119

**Glycogen Disease**—Ellis and Payne report five cases of glycogen disease. Although no case has actually been diagnosed at birth, there is every indication that the condition is congenital. The condition may occur as an apparently isolated phenomenon or may affect two or more siblings. There is no established case of direct transmission from an affected parent. In the majority of case reports no information is given as to the presence or absence of consanguinity of the parents. Although the total number of cases is still small the incidence of two marriages of first cousins and one marriage of second cousins among the parents of less than twenty-five family groups is significantly higher than that in the general population. This incidence of parental consanguinity at least suggests that the condition may be inherited as a mendelian recessive character. In general the children affected with glycogen disease appear to have a low resistance to infections of all kinds, death in von Gierke's original cases and in several others being due to pneumonia or influenza. In patients in whom the condition persists over a sufficiently long period some degree of retardation of growth and development is frequent. This becomes more obvious as the children grow older and is seldom noticed before the age of 3 or 4 years. The organs in which the greatest accumulations of glycogen occur show a generalized enlargement which may be of extreme degree. The liver is most constantly involved whereas the spleen has never been found to be affected. Enlargement of the kidneys, heart and pylorus has occurred in certain cases. The enlargement of the liver alone appears to give rise to no symptoms except extreme prominence of the abdomen which brings the patients under observation. Patients in whom enlargement of the kidneys has been described do not appear to have suffered from renal symptoms. Several examples of hypertrophy of the heart due to glycogen retention have been reported and here the condition may give rise to cyanosis and symptoms of cardiac failure. Obesity has been noted in several instances and the distribution of fat has suggested that seen in adiposogenital dystrophy. The absence of jaundice and of bile in the urine and the fact that the van den Bergh reaction is normal have been emphasized in the differential diagnosis of the condition and cases of hepatic infantilism reported by Exchaquet have been excluded from studies of glycogen disease on this account. Transient jaundice however corresponding with the clinical picture of an attack of catarrhal jaundice is liable to occur in the course of the disease. Vomiting, hirsuties and pigmentation have been observed in several cases. The authors summarize the biochemical observations in glycogen disease as follows: (1) the habitual presence of acetone bodies in the urine generally in the morning though not necessarily throughout the day; (2) a low fasting blood sugar; (3) a raised blood glycogen; (4) failure of the blood sugar to rise normally (i.e. over 30 mg. in from fifteen to thirty minutes) following the injection of epinephrine; (5) a

delayed fall, or other abnormality of the blood sugar curve, following the dextrose test meal, (6) a rise, in some cases, of the blood sugar in the half hour following ingestion of levulose, and (7) a raised blood cholesterol. These criteria are not to be regarded separately as diagnostic, and in fact several may coexist in other conditions, when all are present in the same patient, however, and are associated with the clinical features, they form a syndrome sufficiently characteristic to justify the diagnosis of glycogen disease. The etiology of the disease cannot be regarded as established, but the existing evidence points to defect of the glycogen-splitting ferment and is at least consistent with anterior pituitary dysfunction.

**Muscular Degeneration in Late Adult Life**—Nevin points out that primary degeneration of the voluntary muscles in late adult life is not a common disease. The most likely cause of such a condition, especially if it is chronic, is progressive muscular dystrophy. In his two cases microscopic examination of affected muscle obtained at biopsy showed pathologic changes differing at least in degree from those characteristic of progressive muscular dystrophy. In these cases, in different parts of the muscle there were found local degeneration and complete breaking down of the muscle fibers, which was strikingly different from the usual changes in the fibers in progressive muscular dystrophy. The usual changes recognized as characteristic of the pathology of this condition are hypertrophy of some fibers with atrophy of others, proliferation of sarcolemmal nuclei, increase of fibrous tissue and fat and, occasionally, small celled infiltration round the small vessels. The degeneration of the fibers is shown only by gradual atrophy and proliferation of sarcolemmal nuclei inside the sarcolemmal sheath. Alterations in transverse or longitudinal striation sometimes occur; swellings may occur on the fiber, and hyaline or granular degeneration may take place. The main changes in the cases described are strikingly different in that the degeneration of the muscle fiber has taken place not by gradual atrophy of the fiber but by an intense degeneration in which the muscle fibers have broken down the sarcolemmal sheaths have disappeared and the debris of the degenerating muscle and proliferated sarcolemmal nuclei have called forth an apparent phagocytic reaction. The present cases also differed in the absence of any hypertrophy of the muscles and the absence of involvement of the facial muscles. The author believes that separation of his two cases seems warranted by the present knowledge of the subject. This is not a final statement, as detailed pathologic study of the cases might show a pathologic correspondence between these cases and other cases of late progressive muscular dystrophy. At any rate it seems clear that in progressive muscular dystrophy further study is required of the method of degeneration of the muscle fibers especially in cases of late onset.

### South African Medical Journal, Cape Town

10 37 82 (Jan 25) 1936

- John Graunt The Father of Vital Statistics H. S. Gear—p. 39  
Corneal Transplantation E. A. Seale—p. 41  
Knoppie Spider Bite M. H. Finlayson—p. 43  
Agglutination and Complement Fixation Tests in Diagnosis of Group of Typhoid Fever Case W. Lewin—p. 45

**Spider Bite**—Finlayson calls attention to the fact that specimens of "knoppie-spider" obtained from the Piquetberg, Valmesbury, Graafwater and Caledon areas have been observed to belong to the genus *Latrodectus*. The symptoms following bites by "knoppie-spider" may vary in different individuals but in almost all cases severe cramplike pain is experienced in the chest or abdomen. Frequently abdominal rigidity is observed, and in the majority of cases profuse perspiration is noted and alivation may be marked. The temperature may be subnormal but it rapidly rises to 102° or 103° F. The reflexes are overactive and the patient is often cyanosed. In some cases nausea and vomiting are present in others difficulty in breathing. Death may ensue from heart failure or respiratory failure. The symptoms are neurotoxic in man and animals and in this respect resemble those produced by Cape cobra venom. In the absence of a specific antiserum the treatment must be the same as for snake bite. The treatment of spider bite advocated by Ingram and Musgrave is given. The use of tetanus antitoxin should be considered in all cases.

### Paris Medical

1 117 132 (Feb 8) 1936

- Proteinemia of Hypertension G. Carrière, C. Huriez and M. Laperre—p. 117  
\*Hypocalcemia and Loss of Consciousness of Indetermined Origin F. Kayser and H. P. Klotz—p. 124  
Biologic Reactions for Diagnosis of Pregnancy G. Serdaris—p. 128

**Hypocalcemia and Loss of Consciousness**—Kayser and Klotz report several observations of sudden loss of consciousness of undetermined origin. They decided to measure the blood calcium in all such cases and finally obtained records in eleven patients. In all the patients studied there was a hypocalcemia of varying degree, with a normal range of between 95 and 105 mg of calcium per liter of serum. The observations on the patients gave a variation of from 78 to 93. Furthermore, a state of extreme emotion and a tendency to breathlessness usually preceded the loss of consciousness. The actual syncope probably has a cardiac origin. The constant accompanying hypocalcemia suggests the treatment with a recalcifying medication, such as calcium chloride, vitamin D, parathyroid extract or ultraviolet radiation. The pathogenesis is uncertain, but it may be that the manifestations of syncope are dependent on a sudden disorder of the vagosympathetic system of humoral origin.

### Presse Medicale, Paris

44 225 248 (Feb 8) 1936

- Oncotic Pressure of Serum G. Carrière, C. Huriez and M. Laperre—p. 225  
\*Treatment of Sydenham's Chorea by Intramuscular Injections of Magnesium Sulfate M. R. Contreras—p. 228  
Uremia F. Coste and A. Grigaut—p. 229

**Treatment of Chorea**—Contreras believes that the best way of introducing magnesium sulfate is intramuscularly. The preparation which he uses in the treatment of chorea is made as follows: A 25 per cent solution of magnesium sulfate in distilled water is divided into 5 and 10 cc ampules and sterilized in the autoclave. The injection is given every other day with 5 cc for the patients aged from 1 to 5 and 10 cc for older children. The injection is made deep into the gluteal region and is followed by a long massage. Since his original communication the author has observed that the rapidity of recovery is not closely related to the quantity of the medicine or the frequency of injection. In the majority of cases of chorea a quieting of the involuntary movements is observed between the second and fifth injections. The psychic disorders, especially irritability, are also improved. After the first five injections the patient gradually returns to a normal state and as a rule recovery is obtained with ten ampules. No complications other than pain at the site of injection have been observed, except for a slight tendency to sleepiness in one case. The mechanism of action is uncertain. The author does not believe that the cure is accomplished only by the hypnotic action of magnesium sulfate. He feels that the method described is the most rapid and certain for the cure of chorea.

### Policlinico, Rome

43 427 478 (March 9) 1936 Practical Section

- Toxicity of Stagnant Gastric Content After Gastric Resection and Its Relation to Postoperative Hyperazotemia and Hypochloridemia C. Antonucci—p. 427  
Amebic Abscess of Liver Cases S. Marino—p. 434

**Toxicity of Stagnant Gastric Content After Gastric Resection**—Antonucci states that the grave syndrome of hyperazotemia and hypochloridemia which follows gastric resection in gastric or duodenal ulcers and which, without any other complications, may result fatally is due to alterations of the liver and kidney originating in the absorption of stagnant toxic gastric content by the intestine. The gastric content, a mixture of gastric and duodenal secretions, blood and waste material (particles of necrotic gastric and intestinal mucosae), is secreted and accumulates rapidly after resection, regardless of the technique used, and is highly toxic. Intravenous injections of filtrates of the gastric content, from 2 to 8 cc, in rabbits resulted in death of the animals within one minute to forty-eight hours after the injection. In all the animals there was a marked increase of azotemia and a moderate diminution of chloridemia. The paren-

chyma of the liver and the kidney were congested and greatly injured. The author believes that the results of his experiments support his opinion on the etiopathogenic role assumed by stagnation and intestinal absorption of toxic gastric secretions in the development and evolution of the grave humoral syndrome that follows gastric resection. He points out the advisability of performing aspirations of the gastric content six hours after gastric resection and then once or twice more the next day, a practice which he carries out systematically in all his cases with satisfactory results. His advice is based on the experience of more than 300 gastric resections in gastric or duodenal ulcers.

### Semana Medica, Buenos Aires

43 881 960 (March 19) 1936 Partial Index

- Cystic Degeneration of Internal Meniscus of Knee Joint. Sarrá Satanowsky —p 881  
Sedimentation of Erythrocytes in Ancylostomiasis by Necator Ameri canus. J. Bacigalupo and G. A. Loretti —p 894  
Uncontrollable Vomiting in Pregnancy. Treatment. J. Bazan and R. Dubrovsky —p 901  
Primary Cancer of Choledochus. J. A. Pangaro —p 908  
Treatment of Arterial Hypertension by Roentgen Stimulation of Carotid Sinus. A. Casale —p 931  
Latent Bilateral Hydronephrosis in Hypertension. C. A. Zerbini and A. J. Ghibaudi —p 951

**Cystic Degeneration of Internal Meniscus of Knee Joint**—Satanowsky says that direct trauma of a meniscus is the necessary condition for the development of meniscal cystic degeneration of the knee joint. It is followed by degeneration of the fibrocartilage and of the connective tissue and then by secondary vascular and synovial alterations around the meniscus. The process of degeneration follows a prolonged silent evolution until the appearance of the tumor. The latter develops for a certain time and then enters a stationary stage. The fact that the external meniscus is more exposed to direct trauma than the internal one is the reason why the former is more frequently the seat of cystic degeneration than the latter. The author's patient, aged 18, suffered at the age of 12 a penetrating wound of the internal aspect of the knee joint which was followed by transient tumefaction and pain. Six years later a painful tumor developed at the same spot; the pain increased by walking and disappeared at rest. With clinical and roentgen diagnosis of mucous cyst of the internal meniscus, a meniscectomy by Tavernier's technic was performed. The lesions of degeneration were found to be superimposed over the traumatized spot and a longitudinal rupture of the meniscus, caused by the wound, proved to be present at examination of the removed meniscus. The patient regained complete extension and flexion of the knee joint fifty days after performance of the operation. The author says that partial excision of the meniscus at the level of the cyst fails to give satisfactory results, because cystic degeneration reappears some time after performance of partial operations.

### Archiv für klinische Chirurgie, Berlin

184 549 760 (March 18) 1936 Partial Index

- Contribution to Metabolism of Lipids in Mechanical Ileus. W. Brunner —p 549  
Urinary Lithiasis. H. Angerer —p 558  
Incarceration of Entire Small Intestine in Foramen of Treitz as Unusual Cause of Acute Hemorrhagic Pancreatitis. H. von Winterfeld —p 615  
Site of Amputation in Diabetic Gangrene. M. Matyas —p 624  
Nonspecific Protein Reaction After Blood Transfusion. A. Filatov, N. Blinov, and M. Doepf —p 647  
Postoperative Blood Picture in Total Removal of Stomach. Three Cases. S. Tateno —p 681

**Nonspecific Protein Reaction of Blood Transfusion**—According to Filatov and his co-workers the following factors must be taken into account in considering the frequency of nonspecific protein reaction after blood transfusion: the care with which observations are made on patients following blood transfusion; the nature of the disease for which the transfusion is undertaken; and the question whether the transfusion was performed for the first time. Biologic causes such as the ingestion of a meal by the donor before the transfusion; the relationship of titers of scrums and of erythrocytes of the donor and the recipient; the presence of albumin fractions in the blood; or the use of a universal donor do not play an important part

in the causation of the nonspecific protein reaction. Disregarding the subgroups A<sub>1</sub> and A- results in doubling the number of reactions. The reaction, however, need not take place in every instance in which blood from an improper subgroup was infused. On the other hand, technical errors play a much more important part in the causation of the reaction. The incidence of such reactions may be materially reduced by observing the following precautions: (1) careful cleansing of the apparatus for blood transfusion, (2) prevention of any blood clotting, (3) observance of painstaking asepsis, (4) maintaining proper temperature of the blood to be transfused and (5), what is most important, using distilled water free from any impurity for the solution of chemicals. The authors were able to reduce the incidence of reactions in their last group of 200 blood transfusions to 2 per cent by adhering to these precautions.

**Total Resection of the Stomach**—Tateno reports three cases of cancer of the stomach in which total gastrectomy was performed and the esophagus was anastomosed to the jejunum. Liver metastases were the cause of death in the first case 175 days after operation, while the second and the third patients died 182 and 193 days after the operation from general weakness and anemia. The author found colon bacilli in the jejunum in small numbers; however, their pathogenicity and their relation to the anemia remained obscure. Necropsies revealed that generalized chronic intoxication was the cause of death in the three cases. Systematic examination of the blood demonstrated a diminution in the erythrocytes, hemoglobin content, thrombocytes and reticulocytes. The color index rose. There were no alterations in the red cells characteristic of the pernicious anemia. The anemia observed presented a peculiar blood picture, which the author characterizes as agastric hypoplastic hyperchromic anemia.

### Deutsches Archiv für klinische Medizin, Berlin

178 453 588 (March 9) 1936 Partial Index

- \*Symptomatic Erythrocytosis. H. Otto —p 455  
Studies on Problem of Heredity of Diabetes Mellitus. F. Steiner —p 497  
\*Studies on Oxalic Acid Elimination Particularly in Patients Having Nephrolithiasis. W. Herkel and K. Koch —p 511  
Observations on Pathogenesis of Acute Myeloblastic Leukemia. N. Henning —p 538  
Excretion and Absorption of Water by Skin. W. Burr —p 550  
Reducing Substances in Gastric Juice. G. Krause —p 555

**Symptomatic Erythrocytosis**—Otto shows that the exact definition of the term erythrocytosis and the quantitative interpretation of the terms polyglobulism, hyperglobulism, and erythrocytosis require a purely numerical differentiation. Erythrocyte values between 5 and 55 million he designates as erythrocytosis; values between 56 and 65 million as hyperglobulism; and those in excess of 65 million as polyglobulism. To define the lower limits of erythrocytosis the author made studies on normal men and women and found that in men the sphere of erythrocytosis begins with values of more than 48 million and in women with values of more than 461 million. He reports his observations on erythrocytosis in 242 patients observed in his clinic in the last eighteen months. According to the assumed cause of the erythrocytosis he differentiates eleven groups of cases. One group includes patients with intoxications from various types of gases (carbon monoxide, hydrogen sulfide) and mild cases of lead poisoning. He thinks that in this group of patients the formation of blood toxins such as methemoglobin, sulfmethemoglobin, and carbon monoxide, methemoglobin results in an irritation of the bone marrow and thus in erythrocytosis. In another group who had disorders accompanied by hemorrhages of the gastro-intestinal tract and of the kidney (gastric and duodenal ulcers, various types of nephritis, nephrolithiasis, cystitis) the erythrocytosis is probably caused by irritating hemorrhages. Small quantities of blood that are lost daily stimulate the bone marrow which responds to this stimulus with an increased formation and flooding out of erythrocytes. In the erythrocytosis in disturbances of the hepatic and biliary system he says that the indirect formation of bilirubin probably constitutes the stimulus for the increased hematopoiesis. The erythrocytosis of diabetic patients is ascribed to the acidotic condition of the metabolism. The erythrocytosis that develops in hyperthyroidism and thyrotoxicosis results from stimulation of the bone marrow by thyroid substances indirectly by way of the sympathetic nervous

system. The author mentions the erythrocytosis that develops in the physiologic fluctuation of the internal secretions (puberty, menstruation, pregnancy and the menopause) as well as in pathologic conditions of the endocrine system. He discusses various possibilities by which abnormalities in the endocrine system may irritate the bone marrow and thus produce erythrocytosis. Other patients in whom erythrocytosis develops are those with a decreased oxygen intake, that is, patients with pulmonary and circulatory disorders. In these patients the increase in the erythrocytes is a compensatory mechanism. In vascular disturbances there frequently appears a relative erythrocytosis in which the bone marrow is not involved but in which a contraction of the vessels, a forcing out of the plasma and also a contraction of the spleen are concerned. It is probable that the erythrocytosis of diseases of the brain and of the spinal cord is the result of a vascular paralysis. However, the erythrocytosis developing in patients with neoplasms is probably the result of an irritation of the bone marrow. Infectious diseases also may irritate the bone marrow and thus elicit an erythrocytosis. The duration of erythrocytosis differs considerably.

**Oxalic Acid Elimination in Nephrolithiasis.**—Herkel and Koch describe a method for the determination of oxalic acid in the urine and present their observations on the oxalic acid elimination in the urine of rabbits after various diets and tolerance tests and also after the intramuscular injection of oxalic acid glycol or glycolic acid. They found that the oxalic acid elimination fluctuates from day to day in normal persons but that the average value is eliminated, even if the diet is free from oxalic acid and is of low caloric value, because oxalic acid originates chiefly in the intermediate metabolism. Low values were found in diabetes and achylia, but the values were increased in hepatic impairment and in glomerular nephritis as was the case also in some cases of nephrolithiasis. It could not be proved that the hydrogen ion concentration exerts an influence. In tolerance tests with diets that were deficient in oxalic acid and had a standard protein content but varied in carbohydrate content it could be proved that in many cases the oxalic acid elimination follows the carbohydrate content of the diet, and so it is assumed that relations exist between oxalic acid and the carbohydrate metabolism. Aminoacetic acid and meat exerted no influence. Oxalic acid tolerance tests, in the form of spinach meals, resulted in an increased elimination of oxalic acid in healthy persons. After citing tests made to determine the effect of calcium, atropine, hydrochloric acid, histamine and posterior pituitary extract on oxalic acid elimination, the authors state that patients with achylia react to spinach tolerance tests little or not at all. In one case of impairment of the hepatic parenchyma the oxalic acid was increased, owing to a disturbance in the oxidation by the liver. In other cases of hepatic cirrhosis the elimination was normal. The authors made spinach tolerance tests also on twenty-one patients with renal calculi, among whom were a number with an unstable sympathetic nervous system. Eight of these patients showed a normal response, but the others reacted abnormally, which indicates that there are disturbances in the oxalic acid elimination of many patients with renal calculi. However, the cause for this disturbance is probably not in the kidney but rather in a disordered relationship between substance metabolism, the sympathetic nervous system and hormones.

### Deutsche medizinische Wochenschrift, Leipzig

62 409 452 (March 13) 1936 Partial Index

Relations of Medical Practice to Balneotherapy and Climatotherapy H Vogt—p 409

\*Experiences with Subaqueous Exercises in Paralyzed Patients H G Scholtz—p 417

Arrangement and Method of Subaqueous Exercise Treatment at Warm Springs (Georgia U S A) I Haertl—p 419

Thoughts on Psychotherapy in Spas H Seng—p 429

Dietetic Regulation in Spas L Roemheld—p 431

**Subaqueous Exercises in Paralyzed Patients.**—Scholtz asserts that movement is the most intense stimulus for the impaired nerve cell and that exercises are important in the treatment of paralytic conditions. Subaqueous exercises make possible movements of the paralyzed extremity that are not possible out of the water. Owing to the buoyancy which nearly cancels the weight of the body, relatively weak impulses result

in movements. The first aim of the subaqueous exercises is to give the paralyzed patient again the feeling for movement and innervation and also to revive the will to movement. Another advantage is that the bath in the tank permits movements in all direction and does away with friction, particularly in lateral movements. Moreover, the bath exerts stimulating as well as quieting influences on the nervous system. In warm baths the quieting influence predominates. The author points out that the subaqueous exercise treatment, although formerly recommended by von Leyden, Goldscheider and others has recently been given a great impetus by the work done at Warm Springs, Ga. He reports his own experiences with the treatment in approximately fifty cases. He gives the treatments in a tank in which there is a massage table as well as a rest bench. First passive movements are made, but the patient is urged to help with his own efforts. Occasionally, subaqueous massage is applied by means of the subaqueous douche. This douche has a temperature of 45 C (113 F) and is under a pressure of 25 atmospheres. The latter measure improves the nutrition of the parietic muscles and also eases the spastic contractions. In the beginning, the exercises should be carefully supervised and care should be taken that all the paralyzed muscle groups are given some exercise. The patients should remain in the tank for from thirty to sixty minutes. The author obtained favorable results with this treatment in cases of multiple sclerosis, in spastic paresis caused by vertebral injuries and in cases of paralysis caused by polyneuritis and poliomyelitis.

### Klinische Wochenschrift, Berlin

15 361 400 (March 14) 1936 Partial Index

\*Significance of Determination of Rest Nitrogen and of Renal Impairment in Malignant Diphtheria H Brugsch and G Fülling—p 366

Vitamin C Therapy in Profuse Genital Hemorrhages Resulting from Essential Thrombopenia H O Neumann—p 368

Influence of Pregnancy Urine and of Gonadotropic Substance on Thymus of Guinea Pigs T Klein—p 371

\*Decomposition of Urea as Differentiating Characteristic Between Diphtheria and Pseudodiphtheria Bacilli Johanna Puschel—p 375

Value of Weltmann's Reaction in Rheumatology H Hennes and A Kernen—p 378

Selective Heat Action of Short Waves in Finely Dispersed Mixtures H Weisz—p 384

**Renal Impairment in Malignant Diphtheria.**—Brugsch and Fülling show that a renal impairment, recognizable by the appearance of hyaline or granulated cylinders, is found in the majority of patients with diphtheria. With increasing severity of the diphtheria erythrocytes, a large number of casts, leukocytes and epithelia appear in the urine. However, the urinary sediment alone is no sure sign of the severity of the disorder, for the course of the disease may be mild in spite of considerable involvement of the kidneys. The authors examined the blood, particularly for its rest nitrogen content, and found that an increase in the rest nitrogen makes the prognosis of malignant diphtheria rather unfavorable, whereas a reduction of a formerly increased value is a favorable indication. They cite two cases which demonstrate, on the one hand, the contradiction between the clinical picture and the rest nitrogen content and, on the other, the prognostic significance of the rest nitrogen curve. The cause of the increase in the rest nitrogen content is not quite clear as yet, nevertheless, the continuous determination of the rest nitrogen is a method that permits prognostic conclusions independent of the sometimes misleading clinical manifestations and of the urinary sediment.

**Urea and the Differentiation of Diphtheria Bacilli.**—Puschel reports that, in an attempt to improve the culture medium for diphtheria bacilli by the addition of urea, it was found that the diphtheria bacilli grew luxuriantly on this medium whereas the growth of the pseudodiphtheria bacilli was greatly inhibited and the plates had a distinct ammonia odor, that is, the pseudodiphtheria bacilli apparently were able to decompose urea. Subsequently a large number of tests showed that the diphtheria strains did not decompose urea, while the pseudodiphtheria bacilli did. The author points out that studies of other investigators have proved that the capacity to decompose urea is due to the presence of urease in the bacteria. It is said that this ferment is more frequent in the bacteria occurring in air water and soil than in the bacteria that play a part in medicine. Examinations of a large number of patho-

genic strains convinced the author that the presence of urease is a rare biologic characteristic. Since the pseudodiphtheria bacilli have this rare quality, she suggests that the so-called pseudodiphtheria bacilli should be excluded from the group of diphtheria-like rods and should be designated *Corynebacterium ureaticum*. She points out that the capacity to decompose urea is of diagnostic significance, since the demonstration of this characteristic in organisms suggestive of diphtheria rods excludes the diagnosis of diphtheria. Moreover, she thinks that this capacity of the pseudodiphtheria bacilli contradicts not only their identity but even their close relationship with diphtheria bacilli. She stresses that mutation between the two should be recognized only if the bacteria bacilli have actually become capable of splitting urea.

### Medizinische Klinik, Berlin

82 341 372 (March 13) 1936 Partial Index

\*Articular Lesions Resulting from Working with Compressed Air Tools and from Other Hard Physical Work P Rostock—p 341

Treatment of Hemangioma H Aretz—p 343

Treatment of Retinitis Pigmentosa G Guist and F Seidel—p 350

Hemiatrophia Faciei and Totalis H E Meyer—p 353

Recognition of Type and Cause in Transport Anomalies in Digestive Tract W Kaufmann—p 354

\*Influence of Smoking on Threshold of Stimulus for Sense of Pressure A Wenusch and R Scholler—p 356

**Articular Lesions Resulting from Work with Pneumatic Tools**—In workers who use pneumatic tools, Rostock found that the lesions developing are of two types. 1 Because the musculature is tense to absorb the shocks from the pneumatic tools, traction on the muscles and tendons is increased and reactive bone proliferations develop at the sites of insertion. These proliferations are usually visible in the roentgenogram. 2 The continuous jerks press the articular surfaces against one another and this chronic trauma elicits subchondral necroses, which become manifest in typical osteochondritis dissecans and changes in the shape of the articular surfaces. On the elbow, considerable bone proliferations are observable at the site of insertion of the triceps musculature at the olecranon. The head of the radius likewise shows changes but the most typical form of articular lesion is the bone proliferation at the site of insertion of the brachial muscle. The author illustrates this change in two roentgenograms. Then there may be lesions on the articular surfaces, and movable bodies may develop in the joints. Changes may develop in the wrist and shoulder joints, although they are usually not as pronounced as those of the elbow. The author points out that articular changes of this nature, although they are most frequent in miners and others who use pneumatic tools, nevertheless occur also in other persons who do hard physical work, such as quarry workers, engine stokers, drivers of heavy trucks, workers on chill molds, blacksmiths, washerwomen and operators in shoe factories.

**Influence of Smoking on the Pressure Stimulus**—Wenusch and Scholler studied the changes in the threshold values for the pressure stimulus by experiments with hairs and pendulums. They found that the smoking of tobacco more or less heightens the threshold stimulus for the perception of pressure but that this change soon subsides. The increase is largely dependent on the habituation to tobacco, for the heightening of the threshold of the pressure stimulus is much more pronounced in persons not accustomed to smoking than in habitual smokers, in whom there may be no increase at all. The authors point out that the temporary increase in the threshold of the stimulus amounts to a partial exclusion of the person from the environment, and they think that this might explain why smoking is so often done during excitement.

### Monatsschrift f Geburtshilfe u Gynakologie, Berlin

101 313 372 (March) 1936

Treatment of Ovarian Insufficiency and Its Sequels H Wimbhofer and G Pissarczyk—p 313

Rare Forms of Secondary Gynastrias and of Strictures of Genital Passages T Kovacs—p 318

New Method of Treatment of Endocervicitis and Erosions of Cervix by Means of Intracervical Injection of Ammonia Silver Salt Solution L S Kritschewsky and E Werbatz—p 346

**Treatment of Endocervicitis**—Kritschewsky and Werbatz employ ammonia silver salt solutions in the treatment of endocervicitis and in cervical erosions. They use a 1:20,000

solution in boiled water. Following a preliminary vaginal douche with 1 liter of this solution, the vaginal portion of the cervix is brought down and the external os is wiped with sterile gauze. Then a long needle is introduced into the submucous tissue of the cervix and the tissues are infiltrated with 10 cc of the solution. This injection is made in four directions (anterior, posterior and both sides) into the submucous tissue of the cervix and partly into the muscular layer. This procedure resulted in considerable infiltration and edema of the cervix. In the course of the injection, some of the fluid escaped through the eroded surface into the cervical canal, which was thus irrigated, but at least 2 or 3 cc actually entered the submucous tissue and the muscular layer. In the course of the later injections, when the cervix became softer, the injection was considerably less difficult and from 5 to 6 cc of the injection fluid remained in the cervix. The injections were repeated at five day intervals, and the total number varied between two and eight. The authors obtained favorable results with this treatment in sixty-three of sixty-six cases.

### Monatsschrift fur Kinderheilkunde, Berlin

65 73 224 (March 4) 1936 Partial Index

Roentgenologic Demonstration of Calcified Mesenteric Lymph Nodes During Childhood H Bock—p 73

Calcium Content in Normal and Rachitic Rats H Beumer—p 85

\*Leontiasis Ossea and Its Relation to Hereditary Syphilis Irmgard Scharff—p 100

Pulmonary Volumes of Healthy Children Their Relation to Required Basal Metabolic Values E Puschel—p 105

\*Question of Mental Inferiority of First Born H Luenburger—p 109

\*Later Fate of Children with Convulsions Eva Bergemann—p 116

**Leontiasis Ossea and Hereditary Syphilis**—Scharff reports the history of a girl, aged 11 in whom a hard swelling had appeared on the right superior maxilla at the age of 6. The swelling was painless but slowly increased in size. The question arose as to the type of the bone disease. Osteitis fibrosa (Recklinghausen), Paget's disease and Albers-Schönberg's marble bone disease could be excluded but the symptomatology was like that of leontiasis ossea. The author restricts the latter term to a disease entity in which the bone disease is limited to the cranium (more especially to the superior maxilla) leaving the other parts of the skeleton free. Other characteristics are the hardness of the bone process the onset during early childhood and the painless course. However, even after the disorder had been diagnosed as leontiasis ossea, there still remained the problem of etiology. In this connection the author points out that endocrine disturbances, erysipelas, infectious diseases, fetal defects and trauma could be excluded but a concurrence with congenital syphilis seemed significant because the literature reports a number of cases of leontiasis ossea in which the Wassermann reaction was positive and also some in which antisyphilitic treatment had a favorable effect. In the reported case, antisyphilitic treatment was instituted, but although it seemed to arrest further progress it did not produce a regression and since the secondary symptoms (difficult nasal breathing) persisted surgical removal was decided on. In view of the lack of another satisfactory explanation the author thinks that in the reported case the leontiasis ossea suggests an etiologic relation with syphilis.

**Question of Mental Inferiority of First-Born**—Luenburger challenges the conclusion reached by Klenk and others regarding the higher incidence of mental defects in first born children (abstracted in THE JOURNAL February 8 p 502). He concedes that to one not trained in statistics it may appear that thirty first-born in a total number of sixty-four mental defectives seems to indicate that mental defects are more frequent in the first born than in the later births. However he shows that if the proper statistical procedure is employed this is not the case in fact the number of first born with mental defects is somewhat smaller than could have been expected for if as was the case in the investigated material the average number of children per family was only 2.5 it is natural that the first-born would make up a comparatively large number. The author adds that his criticism of Klenk's conclusion does not apply to that author's observation regarding physical defects.



**Later Fate of Children with Convulsions**—Bergemann reports the results of catamnestic studies on persons who, in the years from 1912 to 1930, had been under observation in the children's clinic on account of convulsions or of convulsion-like attacks. The total number of cases investigated was 155. The largest group fifty-nine were epileptic cases, other diagnoses were salaam convulsion, pyknolepsy, occasional convulsions (fever convulsions), convulsions of neuropathic origin, convulsions caused by organic brain lesions (birth trauma, hydrocephalus, encephalitis), jactatio capitis and so on. It was found that in epilepsy a definite prognosis is difficult, for neither the cases that took a favorable nor those that took an unfavorable course showed characteristic signs. However, the author classifies the epileptic patients in two groups: (1) those in whom the intelligence became impaired and in whom character changes appeared in the course of time (twenty-seven cases) and (2) those in whom such changes did not appear in spite of the continuous appearance of the attacks (thirty-two cases). The impairment of the intelligence became always manifest in the course of the observation but character changes appeared in some cases from the beginning of the disorder. The well known unfavorable prognosis of salaam convulsions was corroborated by the author. In discussing pyknolepsy, she emphasizes that this term should be restricted to a definite symptomatology, of which she gives an outline. She also points out that this disorder is frequently favorably influenced by endocrine therapy and she suggests that by means of this therapy it might be possible to differentiate this condition from petit mal. The twenty cases of occasional convulsions proved the predisposition of early childhood for convulsions, for the after examinations revealed that all these patients were free from such attacks. In three other cases however, the after-examination disclosed that the 'occasional' attacks were really of an epileptic nature. The majority of the patients in whom the convulsions had been of a neuropathic origin had a neuropathic constitution but the convulsions had a tendency to disappear.

### Problemy Tuberkuleza, Moscow

Pp 1148 (No 1) 1936 Partial Index

Experimental Study of Immune Infectious and Allergic Mechanisms in Tuberculosis V M Berman—p 5

Spread of Tuberculous Virus in Organism in Experimental Infection and Reinfection V M Berman and E K Svishevskaia—p 6

Significance of Finding Tubercle Bacilli on Cardiac Valves in Rheumatic Endocarditis P I Benevolenskiy, M K Dal and Z I Sosnovik—p 50

\*Roentgenologic Observations on Effect of Artificial Pneumothorax on Pulmonary Tuberculosis N F Pershina—p 90

**Roentgenologic Observations on Effect of Artificial Pneumothorax on Pulmonary Tuberculosis**—According to Pershina the extent of reparative processes in a collapsed lung is determined by the type and the age of the lesion and by the duration and completeness of the induced pneumothorax. It appears from the roentgenologic studies of the Leningrad Tuberculosis Research Institute that early infiltrating lesions with a tendency to breaking down require not less than four years to heal and bring about a permanent recovery. Patients presenting fibrous caseating lesions required from five to six years of pneumothorax therapy to obtain a permanent roentgenologic and clinical recovery. Interruption of the collapse therapy at an earlier period led to recurrences with cavity formation after three or four years, especially if the patient lived under unhealthy conditions. Recurrences were likewise observed in cases in which the pneumothorax was complicated by the formation of adhesions. Therefore they advise severance of the adhesions even for cases in which the cavities heal and the tubercle bacilli disappear from the sputum. Diminution of the pulmonary area and its aeration observed roentgenologically after a prolonged collapse therapy suggest that considerable anatomic changes take place within the pulmonary parenchyma. The effectiveness of the artificial pneumothorax therapy can be judged from the fact that fibrous caseating lesions may heal under its influence and even become calcified. Such results are only rarely observed in conservative treatment. Displacement of the heart and the mediastinum toward the collapsed lung need not necessarily be due to alterations in the pleura as was formerly believed but

may be the result of cicatrizing alterations that existed in the lung previous to induction of pneumothorax or due to the effect of a prolonged compression of the pulmonary tissue.

### Finska Lakaresallskapetets Handlingar, Helsingfors

79 99 194 (Feb.) 1936

Tumor Producing Agent in Cell Free Tumor Extract A Wallgren—p 109

New Ophthalmodynamometer J G Lindberg—p 124

\*Intrathoracic Neurinoma Three Cases L Petersen Dyggve—p 133  
Do Seasonal Variations in Blood Picture Occur in Population of Finland? C Hampf—p 141

**Intrathoracic Neurinoma**—Dyggve says that only about twenty cases of intrathoracic neurinoma have been reported. In his cases, all in women, diagnosis was made clinically and roentgenologically. The disorder is characterized by slow development, insignificant clinical symptoms, slight roentgenologic intensity, sharp, rounded contour, paravertebral location, size remarkable in proportion to the relative absence of symptoms, and possible occurrence of a dilated intervertebral foramen.

### Hospitalstidende, Copenhagen

79 113 140 (Feb 4) 1936

Relation of Cholesterol in Organism Under Normal and Pathologic Conditions Review H Dam—p 113

\*Monilethrix Eleven Cases in Six Generations Preliminary Report U Larsen—p 129

Negative Result in Examination for Minerals in Sarcoid of Skin K A Heiberg and C J Jacobson—p 136

**Monilethrix**—According to Larsen, the disorder in the family in question has been known for centuries. Of the eleven patients he has examined three: a girl aged 1½, her father aged 38, and a paternal aunt aged 32, representing the three forms of development of the disturbance: (1) full development at birth, (2) development during the first half year of life and (3) later development (the last named mentioned only three times in the literature). The keratosis which in numerous cases accompanies monilethrix, especially in childhood, is a secondary phenomenon or has perhaps the same etiology as the monilethrix and in time disappears wholly or in part. Monilethrix is seen as a hereditary trophoneurosis probably of central origin.

79 141 168 (Feb 11) 1936

Influence of Hypertonic Solutions on Circulation Dextrose Osmosis Therapy E Polack and H Harpith—p 141

Biology of Age and Endocrine Glands H Okkels—p 155

\*Xanthomatosis V Madsen—p 161

**Xanthomatosis**—Madsen says that he has found only six cases of xanthomatosis in the Danish medical literature (cases of Niemann-Pick's and Gaucher's disease excepted). One of these and his personal case, in a woman, aged 55, represent xanthomatosis localized in the skin, without jaundice, three cases, xanthomatosis localized in the skin, with jaundice, and two, Hand's disease. The prognosis in his instance seems less unfavorable than in the third group, but there may be xanthomatous processes in the endocardium, and the chronic liver changes which have existed for a considerable time are grave. Cholecystenterostomy would be justifiable if there are in the biliary or cystic duct partially obstructing processes that compromise the flow of the bile, but at present the risk is considered too great. Roentgen therapy has at most only checked a further propagation of the processes. Continuation of the treatment is intended. The breaking down of the tenth dorsal vertebra is ascribed to xanthomatous metastasis.

### Ugeskrift for Læger, Copenhagen

98 193 210 (March 5) 1936

\*Hypersensitivity to Aminopyrine and Agranulocytosis A B Hansen and C Holten—p 193

**Hypersensitivity to Aminopyrine and Agranulocytosis**—Hansen and Holten report a case of hypersensitivity to aminopyrine with a granulopenic reaction in a woman, aged 25, with a history of two attacks believed to have been agranulocytosis. The patient had been given about 380 Gm of aminopyrine in the course of fourteen months before the hypersensitivity became evident. The authors' attempts to determine whether patients suffering from various endocrine disorders react differently after the administration of small doses of aminopyrine than do patients with other disturbances, or on the whole abnormally, gave negative results.



